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An examination of the decision-making process for utilization of mobile applications in the MICE industry

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ABSTRACT

The present study proposed a theoretical framework to examine consumers' decision-making processes for utilization of mobile applications in the Meetings, Incentives, Conferences, and Exhibitions (MICE) industry. This study combines empirical evidence with constructs that incorporated cognitive and attitudinal variables in the Technology Acceptance Model (TAM), and the habitual, motivational, and emotional variables in the Model of Goal-directed Behavior as related to mobile applications in the MICE industry.

To investigate the conceptual model, data were collected using a web-based survey through Amazon Mechanical Turk. A total of 504 questionnaires were utilized for data analysis. Confirmatory factor analysis was first employed to verify the underlying structure for a set of observed variables. Findings from the measurement model indicated this study's variables included a satisfactory level of reliability and validity. When measures were validated, structural equation modeling (SEM) was used to test the validity of the proposed model and the hypotheses.

Findings from the present study revealed the proposed theoretical framework had a strong ability to anticipate intentions. Complex domains, including cognitive, attitudinal, motivational, habitual, and emotional processes, affected customers' decision-making processes for utilization of mobile applications in the MICE industry. In particular, incorporated antecedent variables in the TAM (i.e., perceived usefulness and perceived ease of use) played a vital role in MICE participants' mobile applications adoption decision formation, and identified attitude and perceived behavioral controls that acted as mediators. Perceived behavioral control regarding MICE mobile application usage had positive effects on desire and intention; whereas, attitudes and positive anticipated emotion have positive

effects only on desire. In addition, desire and habit had a positive relationship with consumers' intentions to utilize MICE mobile applications.

The findings of the current study provide significant insights for researchers and MICE organizations. From the theoretical perspective, this study contributes to the theoretical development of behavior formation regarding mobile technology acceptance in the MICE industry. In particular, this research represents an initial step in building a better understanding of consumer interactions and perceptions of mobile applications. From a practical point of view, outcomes from this study would be useful for decision-makers in preparation of strategic plans and implementation of effective tools to motivate consumers on system use and acceptance of mobile applications.

Keywords. Consumer behavior; Decision-making; MICE; Mobile applications; Model of Goal-Directed Behavior; Technology Acceptance Model

CHAPTER 1. INTRODUCTION

The purpose of this study is to examine consumers' decision-making processes for utilization of mobile applications in the Meetings, Incentives, Conferences and Exhibitions (MICE) industry. This is achieved by examining the constructs of a comprehensive model that incorporated cognitive and attitudinal variables in the Technology Acceptance Model (TAM), and the habitual, motivational, and emotional variables in the Model of Goal-directed Behavior (MGB) as related to mobile applications in the MICE industry. First, Chapter 1 provides a brief background regarding trends and issues currently affecting the MICE sector. Second, an outline of the research purpose and objectives are provided. Finally, definitions of terms and the organization of this dissertation are presented.

Background of the MICE Industry

The Meetings, Incentives, Conferences and Exhibitions (MICE) sector is the newest and fastest growing segment of the hospitality industry and its economic contributions are widely acknowledged (World Tourism Organization [UNWTO], 2014). The MICE industry also has been recognized as a new, value-added business (Meeting Professional International [MPI], 2014), since the MICE industry has played a significant role in the economic growth of MICE destinations around the globe. Also, the MICE industry involes a variety of industries, including tourism, hospitality, transportation, catering, and retail industry, which can provide immense economic benefits, such as income, employment, and investiment (Getz & Page, 2015). Apart from bringing economic benefits, MICE also benefits a destination by providing opportunities for the spread of knowledge and professional practices, destination brand development and network building (UNWTO, 2014). Therefore, Destination Marketing Organizations (DMOs) and Convention and Visitors Bureaus (CVBs)

investigate their destinations' hardware infrastructures (e.g., meeting facilities, convention centers, hotels, and airlines) to generate multiplier effects, such as qualified, transportation, cultural production, and events (Getz & Page, 2015). For example, events in convention facilities provide immense benefits to the broader economy, since they generate higher spending levels and event-driven tax revenues to fund essential city services (UNWTO, 2014). Also, attendees spending help support regional jobs and expand business opportunities for the benefit of the local community (Andersson, & Lundberg, 2013).

Although the MICE industry has steady markets with optimistic trends and forecasts (Rogers, 2013), such competition is becoming fiercer. Furthermore, stakeholder tastes have become ever more demanding, impulsive, and diverse. To remain competitive, maybe even to survive the ruthlessness of this new high competition era, organizations should provide goods, such as services and technology, which can meet consumers' demands (Maital & Seshadri, 2007).

At the same time, the MICE sector has become more tech-savvy (Incentives, Business, Travel, & Meetings [IBTM], 2013; Park & Gretzel, 2007). Recent investigations of business presses show strong evidence that new technologies are substantially changing the way to shape MICE experiences. For instance, there is a survey (IBTM, 2013) on the impact of new technologies (e.g., mobile applications) on event planners' choices within the venues and destinations. The survey results reveal the continuing rise and wide use of new technologies. It found 76% of the event planners predicted increased use of new technologies to shape event content. In particular, 46.7% of the respondents thought mobile applications should be developed in the coming years. Admittedly, statements, such as "MICE mobile applications, developed uniformly across different mobile platforms, provide users with an

opportunity to enhance overall experience of attendees" are widely accepted by majority event planner (MPI, 2014, p.19). Furthermore, since mobile applications and mobile-optimized websites are substantially changing communications in hospitality markets (Micha & Economou, 2005; Weed, 2012), an increasing number of customers are searching for information and planning their experiences with mobile devices (UNWTO, 2014; Wang & Qualls, 2007). The diversity of mobile devices, including smart phones, laptops, and tablet computers, and the increasing computing power of mobile technologies and mobile communication protocols, such as wireless infrastructures, have facilitated this trend (Islam, Islam, & Mazumder, 2010; Kenteris, Gavalas, & Economou, 2009). In the context of the MICE industry, mobile applications have become an increasingly popular tool for MICE experience from the perspective of both event planners and consumers.

Taking into account the facts of the growing utilization of mobile technologies, it is important to identify how to accelerate changes and remove barriers to execute these technologies. According to Kramera, Modschinga, Hagena, and Gretzelb (2007), many organizations, such as CVBs and DMOs, have developed their own dedicated mobile applications to better serve their stakeholders. In particular, mobile applications downloaded to mobile devices that can easily access mobile-optimized websites and meeting-dedicated social media pages are assisting event planners with the registration process and offering an easier method to gather feedback from participants after an event (eMarketer, 2011). Through these mobile applications, event planners and professions can constantly engage their sponsors, as well as build and maintain their social relationships for the remainder of the year (MIP, 2014). These are often achieved by real-time delivery of content and information to attendees in a way that are easy to navigate. At the same time, Laukkanen and Lauronen

(2005) point out such mobile technologies have plenty of unique advantages, such as ubiquity, context sensitivity, interactivity, multimodality, instantaneity, personalization, and identification. The results from all these are apparent. As a crucial part of the MICE planning, mobile applications have attracted an increasing attention of stakeholders.

Nevertheless, the introduction of a mobile technology does not automatically lead to its usage (Parasuraman & Colby, 2001). According to Schrier, Erdem, and Brewer (2010), the capacities to deliver benefits of service technologies primarily depend on consumers' willingness to embrace these technologies. To maximize the benefits of a mobile technology, it is important to understand the consumers' determinants of the mobile technology adoption, especially when the technology is unlikely to be inherently attractive to consumers. Since many technological innovations are too radical or new to users (Garcia & Calantone, 2002), they often cause anxiety for those who have insufficient experience with the technology. According to Mick and Fournier (1998), there are three pre-acquisition avoidance strategies that relate to the ownership of technological products: (1) users perceive a lack of control and feel they are being overwhelmed by technology, (2) users ignore information about technologies, and (3) users refuse to use them or postpone using them. Users' hesitation and reluctance to adopt mobile technology have become a barrier for organizations that want to maximize the benefits of the technology (Cho, Kwon, & Lee, 2007). As explained by Meuter, Ostrom, Bitner, and Roundtree (2003), technology anxiety not only has a strong negative effect on customer adoption of a new technology, but it also has a negative effect on their experience of using the technology. In addition, research on mobile applications is still at an early stage of development and very few studies have specifically investigated the roles of mobile applications in relation to consumer experiential needs (Luxford, & Dickinson, 2015).

Since successful translation from innovation to results depends on consumers' willingness to utilize new technologies (Cadwallader, Jarvis, Bitner, & Ostrom, 2010), the MICE industry should initially consider whether and why consumers are willing to use mobile applications. Clearly, comprehending the determinants of consumers' use of mobile applications is important for facilitating consumers' technology acceptance behavior.

Problem Statement

With the development of mobile devices and phenomenal adoption of mobile connectivity, industry practitioners have realized the potential of mobile technology and incorporated it into the MICE industry (UNWTO, 2014). It is widely accepted that mobile technology and its relevant services (e.g., mobile applications) provide a distinct advantage for tourism organizations and perform multiple functions in tourism practices (Kim & Preis, 2015; Morosan, 2014; Rasinger, Fuchs, & Hopken, 2007).

However, simply launching these mobile applications does not guarantee success (Bouwman, de Vos, & Haaker, 20008; Kim & Preis, 2015). The dramatically growing number of mobile applications makes it difficult for MICE organizations to motivate consumers to utilize their mobile applications. Consequently, the proliferation of mobile applications has created a need to understand how and why consumers are likely to use certain mobile applications. To examine this issue, the bulk of prior research on mobile technology has discussed influential factors that affect customers' willingness to adopt the mobile technology. Two major trends can be observed in previous mobile technology studies. The first type investigates mobile characteristics and possible incentives that drive consumer acceptance of mobile technology (Hanley, Becker, & Martinsen, 2006), with special attention paid to the effectiveness (Khan, 2008; Watson, McCarthy, & Rowley, 2013) and the

importance of tailoring mobile applications (Bauer, Barnes, Reichardt, & Neumann, 2005). The other examines the impact of attitudinal determinants on behavioral intention of tourism-related technologies adoption. In this line of research, several studies have developed their theoretical framework, based on the Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989). In recent hospitality technology studies, TAM has been extensively used to explain the determinants of user's adoption of a wide range of information technologies (Amaro, & Duarte, 2015; Cheng & Cho, 2011; Kim, Kim, & Shin, 2009; Kim, Lee, & Law, 2008; Morosan & Jeong, 2008; Usoro, Shoyelu, & Kuofie, 2010; Wang & Qualls, 2007). The theoretical foundation of TAM is the theory of reasoned action (TRA), which is concerned with consciously intended behaviors (Ajzen & Fishbein, 1980) and links behavioral intention to the actual behavior. The central theoretical premise underlying TAM is technology adoption is determined by two factors: (1) perceived ease of use (PEOU) and (2) perceived usefulness (PU) (e.g., Davis 1993; Igbaria, Guimaraes, & Davis, 1995; Lim & Benbasat, 2000).

However, despite an emerging interest among mobile phenomenon, contemporary mobile user acceptance research (i.e., TAM) still faces difficulties in dealing with rising concerns over mobile user experience and interface. Also, there is only a limited, fragmented understanding of mobile applications as related to consumer behavior. For example, previous studies mainly recognize cognitive determinants of consumer behavior. The TAM asserts the intention to use a technology is only determined by cognitive beliefs—PU and PEOU. While traditional measures of TAM are important for mobile services (Gu, Lee, & Suh. 2009), the automatic, affective, and motivational factors are overlooked by the TAM (Kim, Park, & Morrison, 2008; Klopping & McKinney, 2004). The TAM has also been criticized for not

considering the effects of environmental factors in its theoretical frame (Kim et al., 2008; Klopping & McKinney, 2004).

In addition, there are still several critical questions in the decision-making processes for adopting mobile technologies that have not been answered. How do individual's automatic characteristics (i.e., habit) influence the decision-making process? What are the affective and motivational factors in the decision-making process? How do environmental factors, such as subjective norms and perceived behavioral control influence the decision-making process? However, previous studies might not provide convincing answers to the aforementioned concerns and questions in regard to affective, motivational, and automatic processes. Without understanding the affective, motivational, and automatic processes (Taylor, 2007), a discussion of the decision-making processes for adopting mobile technology is impartial and unreliable at best. To draw a clearer picture that depicts the decision-making processes of the adoption process for mobile technology, it is imperative to understand not only cognitive and attitudinal factors, but also emotional and motivational factors (Venkatesh, 2000).

Since there is the need for a deeper understanding of the decision-making processes for utilizing mobile technology, the Model of Goal-directed Behavior (MGB) could be embedded to provide a more sufficient explanation of consumers' uses of mobile applications on the basis it accounts for the effects of attitude, perceived behavioral control, anticipated emotions, desires, and past behaviors (Perugini & Bagozzi, 2001). The MGB describes the theoretical mechanisms of the decision-making processes and incorporates affective, motivational, and habitual processes overlooked by the TAM (Perugini & Bagozzi, 2004; Schuster, 2013). Moreover, to gain a greater explanatory capability, Perugini and Bagozzi

(2001) introduced behavioral desires prior to intention formation. In the MGB, it is possible to examine the mediating effect of desires on the relationship between the MGB antecedents and behavioral intentions (Perugini & Bagozzi, 2004). Nevertheless, there are limitations of MGB underpinnings in terms of current understanding of consumer's behavioral responses to mobile applications. For example, the MGB does not explicitly account for the effect of cognitive determinants on mobile technology adoption. Also, even though prior studies that have applied MGB to research of travelers' decision-making processes (Dijst, Farag, & Schwanen 2008; Tillema, Schwanen, &Dijst, 2009), few studies have investigated the adoption factors of mobile applications (Kim & Preis, 2015). Furthermore, none have comprehensively investigated the decision-making processes for utilization of mobile applications in the MICE industry.

Even though both TAM and MGB have been widely used in many studies to explain consumers' behavioral intentions, if integrated, the hybrid model could provide an even stronger model than either standing alone. The integration of the two models provides a better understanding of mobile technology acceptance by explaining comprehensive psychological factors, including cognitive, emotional, motivational, desirable, and habitual factors. Consequently, it provides a clearer picture of technology adoption processes and enables prediction of whether users accept or reject decisions. Accordingly, this study aims to predict behavioral intentions by examining the constructs of MGB and their proposed antecedents' variables in the TAM (e.g., PU and PEU).

Purpose of the Study

The purpose of this study is to examine consumers' decision-making processes for utilization of mobile applications in the MICE industry. The present study primarily investigates consumers' behavioral intentions for mobile technology adoption using TAM to account for cognitive and attitudinal determinants of this behavior (Davis et al., 1989). This study also aims to examine the role of the event participants' decision-making processes for adopting mobile technology by proposing an additional concept to the MGB (Perugini & Bagozzi, 2001) to understand participants' behavioral intentions to utilize mobile technology. This proposed model incorporates TAM and MGB to allow for a comprehensive examination of goal-directed behaviors of event participants, while considering the factors influencing their acceptance of mobile technology. Likewise, given the relevance attributed in consumer behavior literature to users' choices in the matter of whether or not they will adopt new technologies, this study examines the role of this psychological variable in the formation of mobile technology adoption processes. Thus, this model considers not only the direct influence of desires on the behavior of event participants, but also the mediating influences of the desires on the relationships between the MGB antecedents and the intentions for utilization.

Comprehensively understanding the decision-making processes of event participants in regards to the mobile technology adoption is imperative to successfully implement and build technology utilization strategies for the sustainable growth of the MICE industry. Thus, the overarching research question is raised as to, "what is the psychological decision-making processes of event participants who would like to utilize mobile technology?"

To answer the research questions, this study attempts to investigate the effects of several major determinants identified by previous studies related to mobile technology utilization. The following objectives will guide the directions of this dissertation.

1. To explore the current use of mobile technologies within the MICE industry to evaluate how successfully they are utilized;
2. To examine how anticipated variables in the TAM (i.e., perceived ease of use and perceived usefulness) interact with motivational variables (i.e., attitude and perceived behavioral control) in the MGB;
3. To examine the mediating effect of desires on the relationships between the MGB antecedents (i.e., attitude, subjective norms, positive anticipated emotions, negative anticipated emotions, perceived behavioral controls and habits) and intentions of mobile technologies adoption;
4. To identify the effects of habit in understanding behavioral intentions of mobile technologies adoption;
5. Based on items 1–4, contribute to the successful development of an innovation for MICE stakeholders using mobile applications by discussing a new method.

Consequently, the present research contributes to developing an integrated model to predict and explain MICE consumers' behavioral intentions with regard to adopting MICE mobile applications. To shed light on the biggest questions facing this sector, such as "how the MICE organizations will attract the business event participants of tomorrow" and "how they can compete in a mobile digital world," this study provides empirical support where the MICE organizations can mine insights from customer data about MICE mobile applications generated to enhance their services. This study also contributes to the

theoretical development of behavior formation regarding mobile technology acceptance by comprising the TAM and the MGB. Overall, this research represents an initial step towards a better understanding of consumer behaviors and the mobile applications acceptance process.

Definitions of Terms

Definitions of the major terms and concepts operationalized for this study are presented as follows:

Anticipated emotion –refer to effective reactions one would expect to have as a result of a specific behavior in the situation of an uncertain future (Bagozzi & Pieters, 1998), with the assumption that positive anticipated emotions encourage the behavior; whereas, negative anticipated emotion inhibits the behavior (Gleicher, Boninger, Strathman, Armor, Hetts, & Ahn, 1995; Perugini & Bagozzi, 2001). In this study, positive, anticipated, emotion responses form when a consumer's previous mobile applications experience with the app is satisfactory, while negative, anticipated, emotion responses form when one's mobile applications experiences with the app are unsatisfactory.

Attitude–is defined as "an individual's cognitive and affective evaluation or appraisal of a behavior that determines the favorability or unfavorability performing the behavior in question" (Ajzen, 1991, p. 188). In this study, attitude refers to a consumer's evaluation of the desirability of using MICE mobile applications.

Behavioral intention– is defined as "the degree to which a person has formulated conscious plans to perform or not perform some specified behavior in the future" (Warshaw & Davies, 1985, p. 214). In this study, behavioral intention is specific to utilizing MICE

mobile applications; thus, it refers to consumer's judgments about the likelihood to engage in online transactions via MICE mobile applications.

Desire–is defined as "a state of mind, whereby an agent has a personal motivation to perform an action or to achieve a goal" (Perugini & Bagozzi, 2001, p. 71), that mediates the effects of the MGB antecedents on behavioral intentions. In this study, desire toward mobile applications in the MICE industry refers to a state of mind whereby a customer has a personal motivation to utilize MICE mobile applications.

Mobile Application–is standalone software that exists on handheld electronic equipment, called mobile device (e.g., smartphone) (Aungst, Clauson, Misra, Lewis, & Husain, 2014). This software is operated on a mobile device to fulfill a particular function. In this study, MICE mobile applications perform multiple functions in MICE practice, since they are functional and readily accessible to MICE planners and consumers at every stage of the transaction process.

Model of Goal-directed Behavior (MGB)–is an extension concept of the Theory of Planned Behavior (TPB), which postulates that intention is determined by one's attitudes, subjective norms, and perceived behavioral controls. In the MGB, Perugini and Bagozzi (2001) add new concepts—desire and anticipated emotion—past behaviors that TPB lacked to explain consumers' intentions.

Habit–is defined as an automatic behavior tendency developed through frequent usage of MICE mobile applications in a stable context (Perugini & Bagozzi, 2001). In this study, habit is used to represent a variable that measures the frequency of repeated performance of past behavior.

Perceived behavioral control–is defined as "the people's perception of the ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 188). In this study, PBC is defined as consumers' self-perceptions of their own capabilities to utilize MICE mobile applications to reinforce their desires and behavioral intentions to adopt MICE mobile applications.

Perceived ease of use–refers to the "degree to which a person believes the adoption of a technology would be free of effort" (Davis et al., 1989, p. 985). In this study, perceived ease of use is described, as the extent to which a consumer believes using MICE mobile applications would be relatively effortless.

Perceived usefulness–refers to "the degree to which a prospective user's subjective probability of using a new technology will improve the user's experience" (Davis et al., 1989 p. 985). In this study, perceived usefulness is defined, as the extent to which a consumer believes using MICE mobile applications would enhance him/her effectiveness in the overall MICE experience.

Subjective norms–refer to "perceived pressures on a person to perform a specific behavior and one's motivation to comply with those pressures" (Ajzen, 1991, p. 188). In this study, subjective norms refer to social pressures to adopt MICE mobile applications, which result from perceiving that others want one to utilize MICE's mobile applications.

Technology Acceptance Model (TAM)–derived from the TRA (Fishbein & Ajzen, 1975). The Technology Acceptance Model (TAM) was developed by Davis (1989) to explain the determinants of user adoption of technology. TAM asserts the intention to use a system is determined by two generalized beliefs—perceived usefulness and perceived

ease of use (Davis 1989). In this study, the principal constructs of TAM have been utilized to predict the behaviors of adopted MICE mobile applications.

Theory of Planned Behavior (TPB)–is based on TRA and developed to predict an individual's intention to engage in a specific behavior (Ajzen, 1991). TPB explores an individual's behavioral intentions, which result in actual behaviors affected by attitudes, subjective norms, and perceived behavioral controls (Ajzen, 2006).

Theory of Reasoned Action (TRA)–is a model concerned with the determinants of consciously-intended behavior. The basic principle behind this theory is human behaviors could be controlled by conscious actions (Ajzen & Fishbein, 1980).

Organization of the Dissertation

This dissertation is organized as follows.

Chapter 1—Introduction—provides a brief background regarding trends and issues currently affecting the MICE sector. Also, the purpose and objectives of this study are presented. In addition, definitions of terms and organization of the dissertation are recounted.

Chapter 2—Review of Literature—contributes a review of the recent literature on mobile technologies. Also, this chapter provides the theoretical framework for this study and discusses relevant empirical literature.

Chapter 3—Research Methodology and Design—a description of methodology is rendered and the data analysis procedure is discussed.

Chapter 4—Results and Discussion—reports the results of the data analysis, which includes demographic characteristics for the sample and descriptive statistics of the research variables. In addition, this chapter presents preliminary analyses of the measurement model and the analyses of structural equation model tests, in addition to a discussion.

Chapter 5—Conclusion—summarizes this study's research results. The chapter also presents key findings and implications, as well as limitations and recommendations for future research.

Chapter Summary

This chapter provides a background for the MICE industry, and reveals industry trends and issues currently affecting the MICE sector. Also, Chapter 1 specifies the purpose and objectives of this study. Additionally, an overview of the terms and dissertation outline are presented.

CHAPTER 2. REVIEW OF LITERATURE

Chapter 2 provides a review of recent literature on MICE-related technologies over the past quarter century, and the underlying theoretical foundation of customers' decision-making processes for utilization of mobile applications. This chapter also provides the underlying theoretical foundations for this study, and outlines the research model and hypotheses.

Technological Changes in the MICE Industry

The MICE landscape is changing fast. This rapid pace of technology innovation and development has dramatic impacts on consumers' behaviors within the hospitality industry (Buhalis & Law, 2008). As a subset of the hospitality industry, MICE organizations, e.g., CVBs, also have made significant strides in adopting innovative technologies in an attempt to create satisfied customers and build customer relationships (UNWTO, 2014).

In the face of rising concerns about user experiences and interfaces over the past quarter century, several innovative technologies have begun to penetrate into the hospitality market, such as Computer Reservation Systems (CRSs) during the 1970s, Global Distribution Systems (GDSs) in the late 1980s (Buhalis & Law, 2008), and technology-assisted self-service environments in the 1990s (Dabholkar, 1994). During the 2000s, this interest has turned towards Information and Communication Technologies (ICT). Along with this growth of ICT, the hospitality organizations have increasingly adopted the Internet (Buhalis & Law, 2008), social media (Kang, Tang, & Fiore, 2014), and information systems into their practices (Green & Skinner, 2005; Kim, Christodoulidou, & Brewer, 2012). Also, ICT are used for consumers' innovation adoption behavior change on an increasing basis (Schrier et al., 2010; Wang & Qualls, 2007). More recently, hospitality-related mobile

service has been gaining substantial ground, due to a development of mobile devices and applications, as well as an effective marketing effort made by mobile service providers (Kim et al., 2008). Consequently, to facilitate the application of innovative technologies, hospitality organizations initially need to understand whether consumers are willing to use these technologies and how organizations serve as either catalysts or barriers to customer awareness and eventual acceptance of these technologies.

In addition, today's 'wait and see' strategy is no longer a solution for hospitality organizations that want to remain competitive (Saunders, 2015). Considering findings from Wu, Mahajan, and Balasubramanian (2003), industry normative pressures would lead hospitality organizations to adopt technologies, since the organizations do not want to be left behind when more and more competitors adopt such technologies. Also, increasing consumer power keeps pressure on businesses to adopt new technologies (Bigné, Aldás, & Andreu, 2008). Customers believe organizations that have not yet adopted new technologies are inferior to average quality of service and facility. From the standpoint of consumers, they are more likely to make a purchase from an organization that offers innovative technological services (Schrier, 2009). Acknowledging the importance of user behavior across the hospitality area, the notion of technology as a tool of persuasion is no longer a negligible concept. These trends have been driven by the promise that innovative technology studies combined with the latest consumer behavior studies can build a better understanding of consumer interactions and perceptions of these technologies.

Mobile Brings Further Technological Capabilities

With the increasing concern about mobile devices and services, public attention has focused on the continuing shift to mobile applications. A mobile application is defined as standalone software that exists on handheld electronic equipment, called a mobile device (e.g., smartphone, tablet, ipad) (Aungst et al., 2014). In a 2014 mobile usage report, Cisco (2014) estimated the number of connected mobile devices in the world was 7.4 billion; smartphones account for 88% of this ownership. The explosion of mobile devices and phenomenal adoption of mobile connectivity leads to a wide adoption of advanced mobile applications. Following this trend, more and more hospitality organizations are actively shifting their operations and services to accommodate mobile users. Findings indicated by accommodating mobile technology, 91% of hotels have mobile websites and three-quarters possess mobile applications (Kim & Connolly, 2013).

Not only industry, but also academia acknowledged mobile applications provide distinct advantages over those delivered through other types of information technology (e.g., desktop, laptop) (Kim, & Garrison, 2009). While an application on a mobile device, in general, is developed to perform a particular function, a mobile application within the MICE industry is not monolithic. Previous research has shown mobile applications have penetrated every decision-making process in consumers' behaviors (Kim & Preis, 2015; Morosan, 2014), from information and service search (Rasinger et al., 2007), to purchasing (Riebeck, Stark, Modsching, & Kawalek, 2008) and evaluation (Wang, Park, & Fesenmaier, 2011). Taking all this into consideration, MICE mobile applications can perform multiple functions in MICE practice, since it revealed consumers have been engaged at every stage in the

transaction processes (MPI, 2014). These trends have induced MICE organizations to provide mobile options to visitors, thus, encouraging them to utilize mobile applications.

However, despite rising concerns over user experience and interfaces, prior research has yielded contradictory findings about whether individuals embrace usage of mobile applications offered by a DMO or tourism organization when the mobile applications are available while traveling; thus, the effects of mobile applications on customers' travel experiences are still questionable (Gavalas & Kenteris, 2011; Kenteris, Gavalas, & Economou 2011). Therefore, it is necessary to understand the reasons why people adopt mobile technologies, while refusing or ignoring others. Numerous studies have emphasized mobile applications provide distinct advantages over those delivered through other types of information technology (Islam et al., 2010; Kim, & Garrison, 2009; Leppaniemi & Karjaluoto, 2005; Riebeck et al., 2008; Watson et al., 2013). In particular, there are four advantages of mobile technologies identified by Siau, Lim and Shen (2001). These four advantages are (1) ubiquity, (2) personalization, (3) flexibility, and (4) dissemination.

Ubiquity. Through mobile devices, users can obtain or distribute electronic information without space-time constraints (Balasubramanian, Peterson, & Jarvenpaa, 2002). Mobile devices' ubiquitous time-space specificity permits universal access to services without time and space constraints. Due to the geographical and temporal independence of mobile channels, customers should highly appreciate the flexible access to information in time and space.

Personalization. By using personal mobile devices, this allows delivery of real-time resources and services customized to the individual (Schuster, 2013). Mobile devices have been considered as Self Service Technologies (SST) that refer to technological interfaces

enabling consumers to produce a service independent of direct service provider involvement (Meuter, Ostrom, Roundtree, & Bitner, 2000). When consumers access the service provider's software via mobile devices, the software is aware of the customers. The software finds and displays consumers' information, based on their previous purchase information and communicates in their native language (Kim et al., 2012).

Flexibility. This advantage explains the level of inherent portability of mobile devices. Since mobile devices are typically sufficiently small to be handheld, consumer's mobile devices can be used to direct their on-site experiences and behaviors (Pearce, 2005). Particularly, with the convenience of mobile devices and easy access to wireless networks, consumers can easily conduct transactions or receive real-time information from an organization's website, as well as they are able to utilize mobile applications for tasks, such as displaying e-maps, locating hot spots, accessing scenic area information, and mobile commerce (Ashford, 2010).

Dissemination. After obtaining consumers' consent, mobile messages can be distributed to consumers within a specific geographic region via a mobile channel. Thus, this functionality provides opportunities to disseminate information to large customer populations.

In part, due to the aforementioned benefits of general mobile technologies, considerable tourism and hospitality market research has explored this topic and reported important findings, which, in turn, improved managerial practices and pragmatic implications (Kim et al., 2008). MICE organizations are also more likely to make use of mobile applications in their businesses. Specifically, there are several unique advantages of mobile applications for the MICE industry. Four general benefits are briefly described next.

First, the MICE mobile applications can provide more opportunities for stakeholders to foster sharing of interests and constantly connect with their consumers (UNWTO, 2014). MICE mobile applications have been developed as a unified platform to be conceptualized and designed with multiple plug-in capabilities where news feeds, social media (e.g., Facebook, Instagram and Twitter), and professional group links can be added and linked together into one huge professional community (e.g., LinkedIn). Through mobile applications, MICE organizations can constantly engage their existing sponsors, as well as create and maintain a chance to stay connected with their consumers, while they are in their everyday professional life (UNWTO, 2014).

Second, given the perishable nature of MICE products, incorporating mobile purchasing methods, namely m-commerce, can provide positive MICE experiences (Kim et al., 2008). According to a 2016 consumer trends report (Mintel, 2015), the development of mobile technology and the wireless Internet have dramatically changed customers purchasing habits. The quickness of mobile payment methods, such as Apple Pay and Google Wallet, has encouraged adoption, with 31% of U.S. consumers already using mobile payments (Mintel, 2015). Such an orientation is rooted in the characteristics of m-commerce (e.g., ubiquity and personalization), which make the relationships between service providers and their consumers increasingly symbiotic (Morosan, 2014). Specifically, mobile platforms enable customers to expect service providers to give them an ever more personalized service. By providing personalized services from consumers' booking experiences to their event evaluation experiences, MICE organizations can deliver effective mobile-centric personalization become a designation of choice.

Third, mobile concierge applications allow consumers to tailor their needs. The development of mobile concierge applications has made travel more convenient, since the user is able to quickly locate a destination (e.g., restaurants and hotels), change or cancel reservations, and communicate with customer service (Kramera et al., 2007; Weed, 2012). By enabling consumers to interact with service providers via mobile devices, and providing accurate, timely information to consumers, consumers' overall satisfaction could improve (Cheng & Cho, 2011). This, in turn, can enhance the user's experience, while at a destination (Chen, 2010). As a result of the proliferation of advanced mobile devices, more than 48% of U.S. travelers annually search for travel information and plan some component of their trips with mobile devices (TripAdvisor, 2015).

Fourth, the MICE sector could use such mobile applications not only to enhance the overall MICE experience, but also to strengthen their connections with the local community by providing visitors' with an overall experience of the destination. By collaborating between the MICE-related service providers and retailers, the MICE industry has been firmly placed as one of the key drivers of city development and an important generator of income, employment, and investment (Getz & Page, 2015). From the standpoint of event planner, such mobile applications help create highly personalized business event plans tailored by consumer's preferences and desires.

These trends have encouraged the MICE sector to provide mobile options to visitors, thus encouraging them to utilize mobile applications. Specifically, both the MICE industry and the government-related organization (e.g., DMOs) have now developed their own dedicated mobile applications to better serve their stakeholders and consumers (Grönroos & Voima, 2013; Wang, Xiang, & Fesenmaier, 2014; Weed, 2012).

Despite these positive effects of adopted mobile technologies, however, a limited understanding of customers' urgent demands and insufficient research in relation to consumer's mobile technology acceptance seem impediments to implement and use mobile applications successfully.

From the consumers' perspectives, as criticized by industry reports (e.g., Pennington, 2014; Steiner, 2012), some consumers stubbornly refuse to use mobile applications because of several restrictions of mobile computing, such as restricted energy capacity, small display size, limited font number support, limited bandwidth and high cost of wireless connections. Also, perceived technology anxiety, defined as "the fear, apprehension and hope people feel when considering use or actually using technology" (Scott & Rockwell, 1997, p. 45), may impede mobile applications utilization. As Cho et al. (2007) stressed, users' hesitation and reluctance to adopt mobile technology has become a barrier for organizations that want to maximize the benefits of technology.

From the theoretical perspective, there has been very little research on the factors that affect consumer's decision-making processes with regards to mobile technology (Rasinger et al., 2007). Theoretical mobile user acceptance research has been required to explain successful adoption of this technology. Also, prior research has shown acquiring consumers and achieving their sustained usage amid the abundance of applications available are regarded as a major challenge to hospitality organizations (Cheng & Cho, 2011). Overall, it is important to understand the key influential factors that may help accelerate changes and challenge barriers towards improving mobile technologies utilization in the field of MICE industry.

Consequently, there is a need to explain the complicated psychological determinants that shape behaviors and preferences. At the same time, it is important to clarify which factors are influential in affecting the decision-making processes for utilization of mobile applications in the MICE industry.

Theoretical Background

Taking into consideration the importance of MICE mobile applications, this study focuses on gaining an insight into MICE consumers' decision-making processes for utilization of mobile applications to achieving personal goals. To provide a solid theoretical basis for examining how people act and react to mobile applications, the present study will evaluate the theories underpinning the investigation of event consumers' behavioral intentions for mobile technology adoption by proposing a comprehensive model that incorporates two primary research streams: (1) technology acceptance literature and (2) consumer behavior literature. It also provides conceptual clarity and preliminary evidence regarding how these two different theoretical frameworks can and should be integrated. This integration helps build the bridge from cognitive technology adoption processes to habitual, motivational, and affective/emotional processes in an individual's decision-making.

Technology acceptance literature

Adoption of novel technologies has been examined through the prism of numerous theoretical models (e.g., Davis et al., 1989; Goodhue & Thompson, 1995; Rogers, 2003). Over the past few decades, there have been five primary conceptual lines of thought utilized to derive a better understanding to predict and explain power with regard to user acceptance of new technologies in the hospitality and MICE industries.

First, the Technology Acceptance Model (TAM) (Davis, 1986, 1989) stands as one of the most widely tested models among the technology acceptance literature (Huh, Kim, & Law, 2009; Kim et al., 2008; Lam, Cho, & Qu, 2007). TAM, as shown in Figure 1, was developed by Davis (1989) to explain the determinants of user's adoption of a wide range of information technologies. The theoretical foundation for TAM is the Theory of Reasoned Action (TRA), which has been used to predict and explain intended behaviors in various domains (Ajzen & Fishbein, 1980). According to Ajzen and Fishbein (1980), TRA hypothesizes an individual's beliefs influence attitudes, which, in turn, lead to intentions, which then generate behaviors. TAM adopts this causal chain of TRA variables—beliefs, attitudes, intentions, and behaviors—to user technology acceptance. Following the TRA, TAM explains the causal relationships between individual's internal beliefs (i.e., PU and PEU), attitudes, intentions, and technology usage behaviors (Davis, 1989). TAM consists of PEOU, PU, attitudes, intentions, and actual use. Among these variables, PU and PEOU are the primary determinants of technology adoption (Adams, Nelson, & Todd, 1992; Davis, 1989). According to TAM, PU is defined as "the prospective user's subjective probability that using a specific application system will increase his/her job performance within an organizational context" (Davis et al., 1989, p. 985). This definition suggests PU is "a measure of outcome expectations for using a system" (Davis & Wiedenbeck, 2001, p. 554). PEOU refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis et al., 1989, p. 985). Thus, PEOU "can be considered a measure of self-efficacy because it is based on users' perceptions of how easy it will be for them to successfully carry out desired courses of actions using the applications" (Davis & Wiedenbeck, 2001, p. 554). Attitude is defined as "an individual's cognitive and affective

evaluation or appraisal of a behavior that determines the favorability or unfavorability performing the behavior in questions" (Ajzen, 1991, p. 188). Intention to use reflects the likelihood a person will employ a technology and refers to the level a person believes the person could utilize a certain technology (Schrier, 2009).

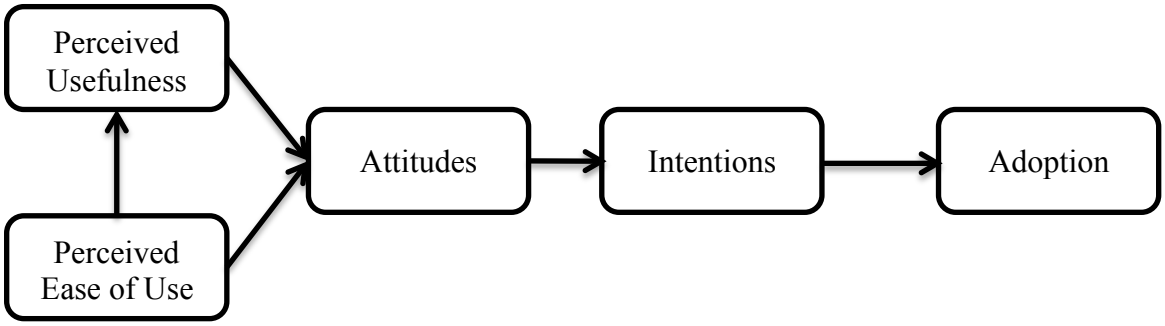


Figure 1. Technology Acceptance Model (Davis et al., 1989)

In recent hospitality organizational technology studies, TAM has been extensively used to explain users' acceptance and use of service technologies (Kim et al., 2008; Kim & Preis, 2015; Riebeck et al., 2008). According to Morosan (2014), once users perceive a technology as useful, they are more likely to have a positive attitude towards using the technology on a daily basis. Moreover, if the users believe the technology is easy to adopt, these perceptions will contribute toward such positive attitudes and increase the likelihood of adopting the technology (Cheng & Cho, 2011). A study by Gu et al. (2009) on the determinants of behavioral intentions to use mobile services, further verifies the significant effect of PEU and PU on intention.

A second approach uses TAM as a theoretical foundation. The technology acceptance literature has expanded its investigation by including "a large number of empirical tests, comparisons, model variants, and model extensions" (Wixom & Todd, 2005, p. 86).

Specifically, many researchers suggested TAM needed given additional or alternative variables to provide an even stronger model (Legris, Ingham, & Collerette, 2003). Most often, it includes adding factors from the Innovation Diffusion Theory (IDT) literature, such as relative advantage, compatibility, trialability, observability, and complexity (Rogers, 2003). According to Rogers (2003), each of IDT's factors is defined as follows. Relative advantage is defined as "the degree to which an innovation is perceived as being better than the idea it supersedes" (Rogers, 2003, p. 15). Compatibility is defined as "the degree to which an innovation is perceived as being consistent with existing values, past experiences, and the needs of the potential adopters" (Rogers, 2003, p. 15). Complexity is defined as "the degree to which an innovation is perceived as a difficult to understand and use" (Rogers, 2003, p. 16). Trialability refers to "the degree to which an innovation may be experimented with on a limited basis" (Rogers, 2003, p. 16). Finally, observability is defined as "the degree to which the results of an innovation are visible to others" (Rogers, 2003, p. 16). By using these characteristics, Rogers (2003) explained the user adoption and decision-making processes.

Nevertheless, this approach has two significant limitations, when it comes to the hospitality sector. First, the innovation adoption rates in the hospitality context can be impacted by other phenomena and circumstances. For example, the adaptation of technology to individual needs, beliefs, attitudes, and intentions can change the nature of the innovation over time. Second, much of the evidence for this theory, including the adopter categories, did not originate in hospitality and was not developed to explicitly apply to the adoption of hospitality technology, while TAM has garnered significant empirical support (Kim et al., 2008).

A third approach has been to investigate the impact of external variables for their internal behavioral variables, which are antecedents to or that moderate the influence of perceived belief in TAM (i.e., PU and PEU). The most significant development in technology acceptance research has been to shift focus from adding or alternating belief factors to the model to identify the effects of external variables, such as personality traits (Kim et al., 2008; Klopping & McKinney, 2004; Venkatesh & Davis, 2000), and system characteristics and task experiences (Goodhue & Thompson, 1995). As suggested by Dishaw and Strong (1999), an integrated Task Technology Fit model with TAM may provide an adequate explanation and prediction of an individual's acceptance of a system or technology within a specific organizational context. According to Goodhue and Thompson (1995, p. 216), the TTF model can be conceptualized to the "degree to which a technology assists an individual in performing their portfolio of tasks." This model explains adoption using four determinants—task characteristics, technology characteristics, task technology fit, and use (Faria, 2012). According to the TTF model, task and technology characteristics determine the task technology's fit, which leads to the adoption and use of the information system (Faria, 2012). The TTF model describes that an individual is more likely to utilize a technology when the capabilities of the technology fit the needs of the individual (Schrier, 2009), since technology adoption depends, in part, on how well the technology fits with the user's goals (Lam et al., 2007). In the context of technology adoption in the hospitality industry, TTF has been examined as an essential element in considering the adoption of technology for task accomplishment in the working environment (Cheng & Cho, 2011; Huh et al., 2009; Lam et al., 2007). TTF corresponds to the relationship of matching among task characteristics and an employee's job performance. As explained by Palmer, Kasavana, and McPherson (1993),

once the technology does not fit the task, the corresponding system cannot be implemented successfully.

However, there are limitations of TTF underpinnings in terms of the current understanding of consumer's behavior responses to mobile applications. According to Goodhue and Thompson (1995), the TTF model depicts that a technology will have a positive impact on individual performance, if the goals the user intends to accomplish are a good fit with the technology (Schrier, 2009). TTF is used to examine the relationship between a user's requirements for a specific task, the user's abilities, and the functionality of a technology (Huh et al., 2009; Komulainen, Mainela, Tähtinen, & Ulkuniemi, 2007; Lam et al, 2007). This perspective is limited in that it only recognizes the goals and activities of the user. The TTF does not explicitly explain the impact of emotions, beliefs, or habits on consumer's use of technologies. Also, as suggested by Schrier et al. (2010), TTF needs additional variables to provide an even stronger model. TTF focusing on fit alone does not give adequate attention to the fact that technologies must be utilized before they can have any impact on performance. In other words, TTF needs incorporated with or used as an extension of other models (Faria, 2012).

A fourth approach is about moderating effects of demographic information on the relationship between PEU, PU, attitudes, and intentions to adopt a technology (Tarcan & Varol, 2010). Certain demographic characteristics affect the way users behave. In particular, biological gender and generational groups have been identified as influential determents in individual perceptions, attitudes, and performance of technology. For example, males are more likely to adopt new technologies (Danko & MacLachlan, 1983) and to use technology (Breakwell, 1983); whereas, increasing numbers of women are using technology, limiting the

influence of gender differences in technology adoption behaviors (Dabholkar, 1992). Previous studies have also found multigenerational differences in technology adoption (Morris & Venkatesh, 2000); younger generations are more likely to adopt an innovative technology as opposed to older individuals, since older people are more concerned about the potential difficulties they may face (Hertzog & Hultsch, 2000). However, previous studies have found conflicting and somewhat confusing findings in terms of statistical significance, direction, and magnitude when demographical variables were included (Danko & MacLachlan, 1983; Morris & Venkatesh, 2000).

Finally, Venkatesh, Morris, Davis, and Davis (2003) provide a comprehensive examination of eight models (i.e., TRA, TAM, IDT, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of PC utilization, and social cognitive theory) and derive a Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT aims to describe user intentions for information systems and subsequent usage behaviors (Venkatesh et al., 2003). This theory suggests four key antecedents to the intention, including performance expectancy, effort expectancy, social influences, and facilitating conditions (Faria, 2012). According to UTAUT, performance expectancy is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in performance and productivity" (Venkatesh et al., 2003, p. 447). Effort expectancy is defined as "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). Social influence refers to "the degree to which an individual perceives that others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). Facility condition is identified as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the

system" (Venkatesh et al., 2003, p. 453). According to Venkatesh et al. (2003), performance expectancy, effort expectancy, social influence, and facilitating conditions will significantly affect user behavioral intentions, which, in turn, will determine actual behaviors. The positive effect of these constructs on behavioral intentions is influenced by gender, age, experiences, and voluntariness of use (Venkatesh et al., 2003). However, since the UTAUT was initially developed to explain and predict the acceptance of innovative technologies in an organizational context (Venkatesh et al., 2003), the literature based on this theoretical framework has mainly focused on the organizational context like a human resources database (Eckhardt, Laumer, & Weitzel, 2009), or organizational social networks (Sykes, Venkatesh, & Gosain, 2009). Therefore, this theoretical framework should be cautiously implemented to analyze the acceptance of technologies used by consumers and private users.

Limitations of the technology acceptance literature

Along with TAM, the TAM family of models lends itself to extension to examine factors affecting users' acceptances of specific technologies across different markets. According to Lee, Kozar and Larsen, (2003), there are 21 variables utilized to extend TAM. In the hospitality industry, discipline-specific extensions were made to TAM to illustrate the factors influencing consumer acceptance of hospitality-linked information technologies (Kim & Qu, 2014; Morosan, 2012). However, despite the TAM-related studies seem to have extensive empirical support for its power to predict technology usage, "there is a need for theory-based research and a deeper understanding of consumer behavior with regard to a users' mobile technology acceptance, particularly in hospitality" (Kim et al., 2008, p. 396). Several studies were conducted to examine the relationship among internal beliefs (i.e., PEU & PU), external factors and the use of technologies used in hospitality (Kim et al., 2008).

This revealed the original TAM remains the most influential theoretical background and leads the paradigm in information technology adoption (Kim & Qu, 2014; Moody, Iacob, & Amrit, 2010). In other words, for the foundation of the development of this study's conceptual model, only a handful of TAM (i.e., PU and PEU) play a role in the complex context for usage of mobile applications (Kim & Qu, 2014). Therefore, this study incorporates only two key determinants (i.e., PU and PEU) for consumers' mobile applications adoption.

In addition to the aforementioned limitations, there has been growing criticism about the appropriateness and comprehensiveness of the TAM family of models. The first shortcoming concerns the appropriateness of the TAM and similar theories, which mostly link to parsimony and the inability to adapt the evolving, complex technology contextual factors (Bagozzi, 2007; Benbasat & Barki, 2007; Legris et al., 2003). Second, TAM-based studies are more appropriate in an organizational context, deterministic, and tautological (Bouwman, Van Den Hooff, & Van De Wijngaert, 2005). Third, they are considered lacking in ability to provide sufficient understanding from a standpoint of providing social influence, emotions, and past experiences (Bagozzi, 2007). Consequently, these concerns have caused a need for more critical evaluations of TAM's theoretical framework prior to their adaption and adoption to explain consumers' use of complicated technologies, such as mobile applications.

Such criticism facilitated the development of recent streams of research, which shifted the focus from beliefs predicting and explanatory power to user acceptance of new technologies to beliefs reflecting consumer behaviors. This line of reasoning naturally led to consumer behavioral theory. The following section briefly outlines the key behavioral

theories—TRA, TBP and MGB—employed by the literature and then presents an evaluation of the capacity of theories whether they can adequately explain consumers' adoption, particularly the mobile applications forming the focus of this research.

Consumer behavior literature

Various consumer behavior theories were developed and employed to explain and predict consumer's decision-making processes across a variety of settings. Since, consumers' decision-making patterns draw from sociological, psychological, and anthropological concepts and framework (Belk, 1975), there are several attempts to determine effective measures for predicting and examining consumer's technology adoption processes by using socio-psychological theories, such as the TRA (Ajzen & Fishbein, 1973), the TPB (Ajzen, 1991), and the MGB (Perugini & Bagozzi, 2001).

Theory of Reasoned Action (TRA)

The theory of reasoned action (TRA) is one of the most prominent consumer behavior models, which specifies the factors for consciously intended behaviors. TRA posits a causal relationship between attitude, subjective norms, behavioral intentions and behavior. The basic principal behind the TRA is a person's attitude and social pressure will influence their behavioral intentions, which, in turn, shape their behavior (Ajzen, 1980) as shown in Figure 2. In TRA, attitude is defined as "an individual's cognitive and affective evaluation or appraisal of a behavior that determines the favorability or unfavorability performing the behavior in questions" (Ajzen, 1991, p. 188). When an individual has a more positive attitude toward the target behavior, the individual is more likely have a stronger intention to perform the behavior and, consequently, there is a higher possibility for performing. Subjective norms refer to "perceived pressures on a person to perform a specific behavior and the one's

motivation to comply with those pressures" (Ajzen, 1991, p. 188). Behavioral intentions refer to "indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991, p. 181). As a whole, TRA constructs determine the degree to which a person has a positive or negative evaluation of the behavior that is a function of behavioral intentions, which, in turn, is formed by a combination of attitudes and subjective norms.

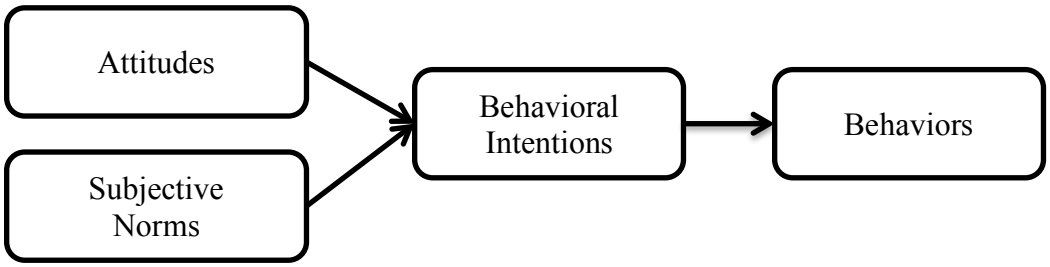


Figure 2. Theory of Reasoned Action (Fishbein & Ajzen, 1975)

Limitation of TRA

There is a key drawback of the TRA to predict only volitional behaviors. It does not address internal factors not under the control of an individual nor does it consider external factors over which an individual does not have control. TRA posits "behavior can be easily performed if people are so inclined or refrain from performing them if they decide against it" (Ajzen, 2006, p. 99)—that is, individual behavior under examination must be controlled totally by volition (Sheppard, Hartwick, & Warsaw, 1988). In other words, behaviors influenced by external factors (e.g., information, opportunity) do not meet this condition. Therefore, TRA may not be an appropriate model to explain consumers' technology adoption processes influenced by external determinants beyond their control (Lee & Allaway, 2002).

More specifically, there are difficulties to apply TRA to explain consumers' decision-making processes of technologies adoption, since the TRA is too restrictive an assumption to explain both volitional and non-volitional behaviors. Specifically, this limitation is pertinent in the case of technology utilization. To investigate what determines user technology utilization, Trice and Treacy (1988) and Davis et al. (1989) extend the concept of TRA. Their studies postulated the actual usage of a technology is predicted by behavioral intentions to utilize the technology. In addition to this assumption, an individual's beliefs and perceptions with regard to the benefits of using a technology have an influence on that person's decision-making processes. Among them, Trice and Treacy (1988) focused more on the relationship between demographic characteristics of individuals (e.g., age, education level) and personal beliefs regarding technology. The demographical characteristics exert some sort of influence on an individual's usage decisions (Trice & Treacy, 1988). Unlikely Trice and Treacy (1988), Davis et al. (1989) integrated cognitive beliefs (i.e., PEU and PU) into TRA—called TAM.

Theory of Planned Behavior (TPB)

Based on the causality of TRA, the theory of planned behavior (TPB) is used to predict human behavior and behavior intentions (Ajzen, 1991). In the TPB, as shown in Figure 3, behavioral intentions, which result in actual behaviors, is affected by subjective norms, attitudes influenced by an individual's beliefs, and situational variables (i.e., perceived behavioral control). Perceived behavioral control is additional behavioral determinants for the TPB (Ajzen, 1991). Perceived behavioral control refers to "people's perception that one has the capabilities to perform the particular behavior" (Ajzen, 1991, p. 183). In the TPB, perceived behavioral control predicts, together with behavioral intentions,

it can be used to predict actual behaviors (Sentosa & Mat, 2012). Specifically, perceived behavioral control has a direct effect on behavioral intentions and actual behaviors, respectively, as well as an indirect effect on actual behaviors through intention to perform the behavior.

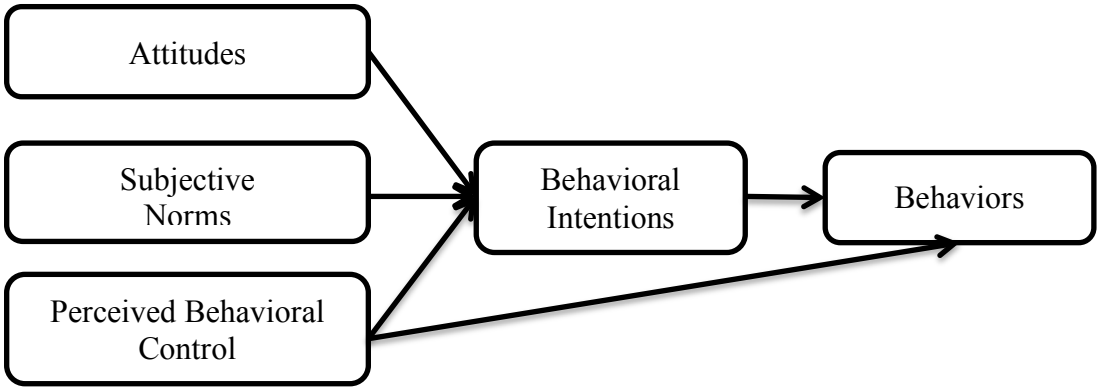


Figure 3. Theory of Planned Behavior (Ajzen, 1991)

The unique advantage of TPB over TRA is TPB can explain the non-volitional behavioral part; whereas, the TRA is limited to predicting behavior uncontrolled by volition. In a study by Fishbein and Ajzen (1975), TPB postulates these attitudes, subjective norms, and perceived behavioral controls are important determinants in formulating behavioral intention. Also, TPB has been more extensively applied to predict intention and actual behavior, while considering behaviors where individuals have incomplete volitional control (Conner, Povey, Sparks, James, & Shepherd, 2003).

Along the line of technology adoption, TPB was utilized to examine users' intentions to employ technology (Cheng & Cho, 2011; D'Ambra & Rice, 2001). As a general theory, TBP does not specify the particular beliefs related to any particular behaviors, so determining these beliefs is left to the researcher's preference (Sentosa & Mat, 2012). D'Ambra and Rice

(2001) asserted an individual's technology adoption intentions are influenced by perceived behavioral control, social norms, and attitudes toward the technology. They also stated the person's intentions to use the technology have a strong influence on actual behaviors. Moreover, applying Fishbein and Ajzen's (1975) idea to technology adoption decision-making processes, "attitude toward a technology and the motivation to comply with societal pressures toward a behavior (subjective norm), the perceptions of availability of skills, resources, and opportunities that may either inhibit or facilitate its use (perceived behavioral control) is important factor in formulating behavioral intention to adopt the technology" (Cheng & Cho, 2011, p. 493).

Limitations of TPB

Although TPB expands the boundary conditions for TRA and has been successfully applied to a range of behavior domains by considering control-related factors (Ajzen, 1991), the TPB still possesses limitations that need considered and evaluated.

First, the TPB is defined for or applied to either specific behaviors or goals, but not to behavior as a function to achieving individuals' goals (Perugini & Conner, 2000). Since TPB considered behavior as the terminal goal, researchers often fail to consider that actions could be undertaken for the purpose of goal attainment (Bagozzi, 2007; Schuster, 2013). However, to examine factors affecting consumers' technology acceptance, it is important to take into consideration the consumers' technology usage goals explicitly (e.g., improved efficiency) (Bagozzi, 2007). In addition, TPB is likely to provide a situation-specific model for decision-making (Bagozzi, 2007), when conceiving decision-making in goal-setting terms. Consumers' adoption and usage of MICE mobile applications is likely goal-directed, such as those aimed at enhancing the experience of a destination (e.g., Kramera et al., 2007) or

catalyzing the sustained usage of technologies for information search and actual purchases (San Martín & Herrero, 2012).

Second, along with TRA, the TPB mainly focuses on cognitive determinants of behavior. According to Ajzen (2006, p. 117), "the TRA is based on the assumption that human beings usually behave in a sensible manner; that they take account of available information and implicitly or explicitly consider the implication of their actions." This rational has been criticized by researchers, who pursue affective determinants are also important in the decision-making processes (Perugini & Bagozzi, 2001; Perugini & Conner, 2000; Song, Lee, Kang, & Boo, 2012). However, the TPB does not reveal how affective beliefs or outcomes are associated with performing a behavior (Bagozzi, 1992; Perugini & Bagozzi, 2001; Conner & Armitage, 1998). To remedy the shortcomings of TPB, researchers have continued to extend TPB by adding affective or emotional variables (Conner & Abraham, 2001; Conner & Armitage, 1998). However, in terms of technology acceptance processes, the role of affective variables is still underestimated to examine consumers' technology usage (Bagozzi, 2007).

Third, TPB is criticized for not taking into account the effects of habitual processes (Schuster, 2013). Such criticism facilitated the development of recent streams of research, which shifted the focus from beliefs reflecting technology usage (e.g., usefulness and ease of use) to beliefs reflecting personal experiences (e.g., past experience) (Irani, 2000; Kim et al., 2008; Klopping & McKinney, 2004). In particular, while the traditional measures for technology adoption are important for mobile services (Gu et al., 2009), individual factors can be used as antecedent variables to better explain and predict users' adoption behaviors of technology (Perugini & Bagozzi, 2001), particularly in hospitality.

In sum, while there has been increasing concerns about the appropriateness of TPB, there is no solid theoretical basis for examining consumer behaviors of mobile applications in the MICE Industry. Also, the explanatory powers for the TRA and TPB do not provide sufficient explanation about consumers' use of MICE mobile applications. To minimize the limitations of TRA and TPB, an alternative theoretical approach to explain the effects of affective and habitual processes is needed.

Model of Goal-directed Behavior (MGB)

The Model of Goal-directed Behavior (MGB) (refer to Figure 4) is developed as an advanced approach to TPB and TRA (Perugini & Bagozzi, 2001). The MGB, while maintaining the basic constructs of the TPB, broadens and deepens the understanding of the theoretical mechanisms for the decision-making processes by incorporating affective, motivational, and automatic procedures (Taylor, 2007). First, the MGB extends the TPB by adding desire as the direct influential factor for the intention (Perugini & Bagozzi, 2004). Second, by incorporating the constructs to represent goal-related and emotional processes influences on behavior, the MGB can explain the impact of goals on the performance of goal-directed behaviors (Richetin, Perugini, Adjali, & Hurling, 2008). This approach is important, since consumers' use of MICE mobile applications is likely goal-directed. Furthermore, the MGB can overcome the limitations of the previous attitudinal theories (i.e., TRA and TPB) by explaining the impact of emotions on consumers' performance behavior. Third, by including the habitual factor, the MGB enhances explanatory power with respect to unintentional behavioral decisions, such as past behaviors or habits (Bentler & Speckart, 1981). In addition, the MGB can recognize the impact of habit on the performance of future behavior. Overall, the MGB provides theoretical support as the conceptual framework for

this research, and, in turn, it could deliver a better predictor of consumers' intentions to utilize MICE mobile applications.

The following delivers further explanation how three additional determinants can influence the performance of behavior. First, the MGB introduces anticipated emotions as important antecedents in the decision-making processes (Perugini & Bagozzi, 2001). Along with the TPB variables, anticipated emotions are used to predict desires. MGB posits if a person is deliberate in one's actions, s/he is more willing to take the emotional consequences of success and failure to perform the behavior into account, resulting in corresponding negative and positive anticipated emotions (Perugini & Bagozzi, 2001). Here, anticipated emotions represent a specific form of counterfactuals, called 'prefactual' thinking (Gleicher et al., 1995), hypothesized to influence the desire to perform a given action.

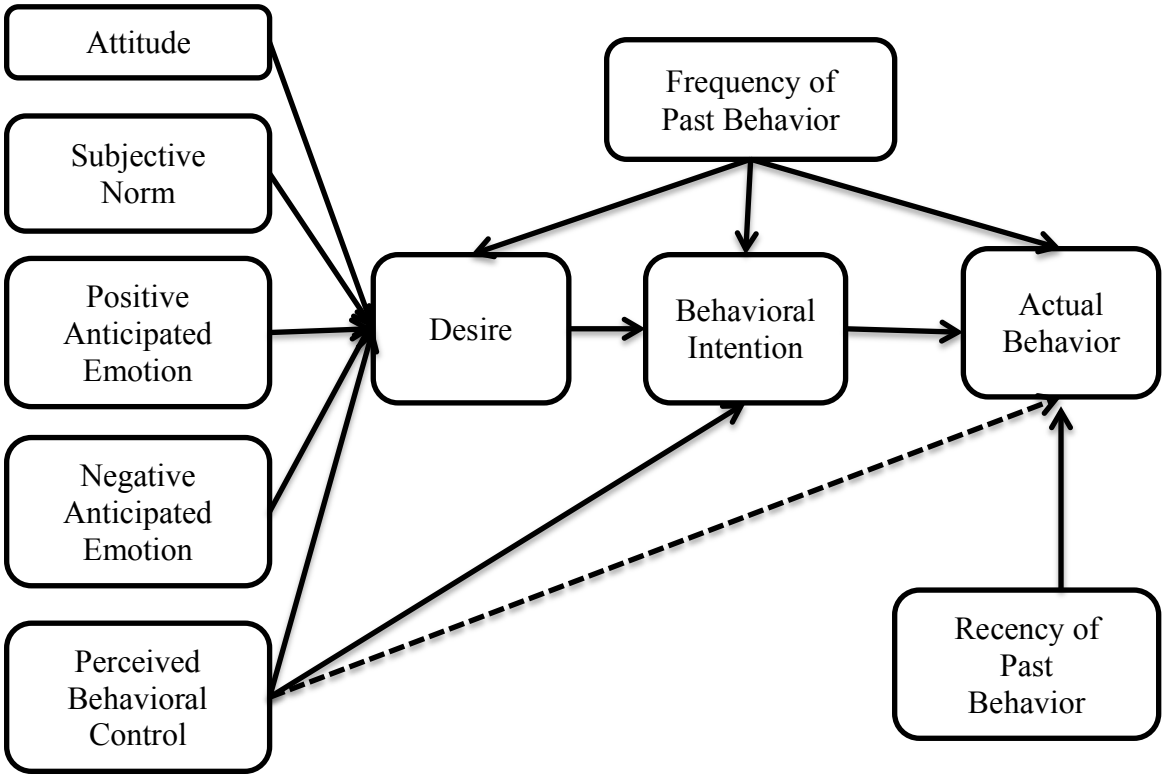


Figure 4. Model of Goal-directed Behavior (Perugini & Bagozzi, 2001)

Second, the MGB emphasizes the importance of desire as the key determinant of behavioral intentions. Desire represents "the motivational state of mind wherein appraisals and reasons to act are transformed into a motivation to do so" (Perugini & Bagozzi, 2001, p. 84). The study of desires became reflected in the work of human behavior researchers. Since humans want to naturally satisfy their desires for a gratifying self-image, they tend to believe, intuit, and act in certain ways to achieve their goals (Perugini & Bagozzi, 2001). The MGB supports this idea by specifying desire as the most proximal factor of behavioral intentions, while the TRA and TPB did not distinguish between desire and intentions. Also, it is possible to organize the role of desire within the MGB domain into at least five distinct areas—attitudes, subjective norms, perceived behavioral controls, anticipated emotions, and intentions.

Attitude. Perugini and Bagozzi (2001) found two major differences between attitude and desire. First, to perform a specific behavior, it is necessary to have motivational appeal to perform the behavior. Since desire entails a motivational commitment; whereas, an attitude does not, it is possible to account for the explicit motivational content required to induce an intention to perform a specific behavior. Second, desire is derived from rational or utilitarian reasons and can be used to explain different types of goal-directed behaviors (Bagozzi & Kimmel, 1995). Since desire originates from reason, one can assume attitude stimulates desires. For instance, if an individual has a positive attitude towards traveling, this positive attitude is more likely to generate a desire to take a trip that has a positive effect on the actual trip. Thus, it is reasonable to assume intention is determined by desire, which, in turn, is influenced by attitude toward traveling (Perugini & Bagozzi, 2001).

Subjective norms. Subjective norms refer to "perceived pressure on a person to perform a given behavior and the person's motivation to act accordance with those pressures, and a person's behavioral intentions were found to correlate with a subjective norm" (Cheng & Cho, 2011, p. 493). With regard to the pressure, it is identified as the amount of pressure to use a system exerted by both superiors and peers (Cheng & Cho, 2011). A number of studies have supported such correlations between subjective norms and desire in the context of hospitality research (Song et al., 2012). The MGB studies empirically revealed desire could be strengthened as subjective norm changes to stronger in the situation when we assume the level of other factors does not influence behavioral intentions.

Perceived behavioral control. Perugini and Conner (2000) pointed out a strong association exists with perceived behavioral controls that mediate its impact on behavioral desires. According to MGB, perceived behavioral control refers to the environmental factors that make a behavior easy or difficult (Cheng & Cho, 2011). Since perceived behavioral control is considered a non-volitional dimension, it is likely to play an important role when the focus is on how to achieve the goal, such as in the goal striving stage (Perugini & Bagozzi, 2001).

Anticipated emotions. The constructs of positive and negative anticipated emotions are introduced as additional predictors of desires (Carrus, Passafaro, & Bonnes, 2008). In the MGB, anticipated emotions have been suggested as important determinants of intention through desire (Conner & Armitage, 1998). In particular, the positive and negative anticipated emotions predict desires with the original antecedents of the TPB. These emotions impact the self-regulatory process implied by the consequence assessment of success or failure for performing a behavior (Carver & Scheier, 1998).

Intention. Bagozzi (1992) has concern for the links between desires and intentions. Intentions are influenced by desires in MGB. When people desire something, potential outcomes are evaluated under the comparisons of the desire and potential consequences. Specifically, intention to performance a behavior is a superior predictor of behavior over desires, and the impact of attitude on intention is entirely mediated by desire (Armitage & Conner, 2001).

Third, the MGB model includes past behavior effects on intentions (Leone, Perugini, & Ercolani, 2004). Past behavior is an imperative factor of attitude-behavior research area (Bagozzi & Warshaw, 1990; Conner & Armitage, 1998; Perugini & Bagozzi, 2001), even though the original model for either the TRA or TPB overlooks the role of past behaviors. Past behaviors in MGB are used as a predictor of behaviors two ways—habit and intention formations (Ouellette & Wood, 1998). First, habit formation is a key determinant of the continued performance of established behaviors. When a behavior is constantly performed, a habit can be formed in relatively settled, regular contexts where the practice becomes automatic (Donovan, 2012). Second, in terms of intention formation, it is assumed when behaviors are performed in relatively less stable contexts, normative decision-making processes could mediate past behaviors.

Limitations of the Model of Goal-directed Behavior (MGB)

Like all models, the MGB has limitations. There are two key limitations of the MGB addressed by this research. First, since the structural characteristics of the MGB vary across MGB-based empirical studies, it is difficult to generalize the MGB across behavioral domains. For example, there are inconsistent findings regarding the impact of anticipated emotions. Therefore, to explain the performance of target behaviors in MICE mobile

applications adoption, it is necessary to extend the explanatory power of the MGB by including additional variables that can account for the consumer's decision-making processes of mobile applications adoption.

Second, in spite of the plethora of research on attitudinal theories, in general, and the MGB, in particular, limited research has been conducted on the relationships between individual's intentions to utilize interactive mobile technology and habitual processes with the goal of improving accuracy of behavioral intentions, which provide a clue to understanding individual's decision-making processes. According to Lee, Xu and Schrier (2015), past behaviors or habits are a significant determinant that can explain the habitual aspects of technology acceptance processes and should be considered significant determinants of human decisions. Thus, this study investigates the impact of past behaviors, particularly with regards to explaining consumers' adoption of mobile applications.

Endeavour to resolve the theoretical problems: Combine TAM and MGB

TAM and MGB by themselves have often been applied to understand a variety of human behaviors. However, researchers have emphasized the necessity for a revision of the existing socio-psychological theories to include new constructs or combine with other models critical in specific contexts or alter existing paths among latent variables (Ajzen, 1991; Conner & Abraham, 2001; Dishaw & Strong, 1999). Ajzen (1991) and Ajzen and Fishbein (1980) suggest incorporating different types of variables that affect decision-making processes and behaviors, and are conceptually independent variables from existing theory and potentially appropriate for a specific behavior. In other words, certain theoretical mechanisms can be better understood by introducing new constructs that mediate or moderate the effects of existing variables. In this context, this study postulates a combination

of TAM and MGB could be a better predictor of decision-making processes of technology adoption than either one alone.

In the light of the original MGB, this combined idea can provide support for the MGB's capacity to explain consumer's use of MICE mobile applications to enhance their overall MICE experiences. Adding new, important constructs highly interrelated with the original variables form the MGB as antecedents or predictors that contribute to a better understanding of the MGB's theoretical framework in the MICE mobile applications context. From the viewpoint of TAM, this integrated variable could be extensively used to explain the adoption of mobile technologies (Kim et al., 2008; Riebeck et al., 2008).

Although each possesses several limitations, overall, combining the perspectives of TAM and MGB can adapt and apply their key theoretical attributes to explain mobile applications' adoption processes within the MICE industry. Such integration can help build a conceptual bridge from cognitive determinants of mobile usage to the effects of desires, anticipated emotions, and past behaviors.

Hypothesis Development

To build on current understanding of the determinants of consumers' decision-making processes for utilization of mobile applications in the MICE industry, it is important to determine whether consumers are willing to use these mobile applications and why they would do so. This study proposes a comprehensive model that incorporates attitudinal variables from the TAM and consumer behavioral variables from MGB. First, key determinants of consumers' usage of mobile technology are hypothesized—not captured by the MGB. Second, this study considers the roles of MGB variables in the proposed model and developed hypotheses (Taylor, 2007).

Technology Acceptance Model (TAM)

Adopting MBG in the context of user technology acceptance, TAM asserts the behavioral intentions to use MICE mobile applications are determined by two generalized beliefs—PEU and PU (Adams et al., 1992; Davis, 1989). Applied to MICE mobile applications' consumer behaviors, PEU of MICE mobile applications is defined as the extent to which a consumer believes using MICE mobile applications would be effortless, while PU is defined as the extent to which a consumer believes using MICE mobile applications would enhance him or her effectiveness in the overall MICE experience.

In line with TAM, a relationship between PEU and PU has been recognized (Morosan, 2014). TAM specifies ease of use as a pre-condition for usefulness perceptions (Davis et al., 1989; Porter & Donthu, 2006) and other studies support ease of use predicts PEU (e.g., Lanseng & Andreassen, 2007). In particular, PEU for mobile applications may influence consumers' PU (Huh et al., 2009; Lu, Liu, Yu, & Wang, 2008; Morosan, 2014). Therefore, the following hypothesis is developed:

Hypothesis 1: Perceived ease of use is positively related to customers' perceived usefulness of mobile applications in the MICE industry.

A number of previous studies on the combination of TAM and consumer behavioral theories have proposed similar conclusions regarding the positive relationships among the PEU, PU, and attitudes (Davis, 1989; Kim et al., 2008; Morosan & Jeong, 2008; Venkatesh & Davis, 2000). This occurs because the integration of theories, both derived from the TRA, share the attitude variable and explain an intention to behave in a determined way. Previous research found PU and PEU have significant effects on behavioral intentions mediated by attitudes. Attitude toward technology refers to an individual's favorable or unfavorable

feelings about performing a target behavior (e.g., adopting technology) or using an object (e.g., mobile device) within the TAM framework (Teo & Noyes, 2011). With regard to focal behaviors, attitudes toward mobile applications in the MICE industry are defined as the consumer's evaluation of the desirability of using MICE mobile applications. Based on the above literature review, PEU and PU are hypothesized to have effects on customers' attitudes toward mobile applications in the MICE industry. The following hypotheses are proposed:

Hypothesis 2: Perceived ease of use is positively related to customers' attitudes toward mobile applications in the MICE industry.

Hypothesis 3: Perceived usefulness is positively related to customers' attitudes toward mobile applications in the MICE industry.

In addition to the attitudinal role of PEU, the instrumental aspect of PEU (Davis, 1989) was viewed as a control belief that facilitates a behavior with lower personal effort (Lepper, 1985). In other words, there is a positive relationship between the PEU and perceived behavioral control (Pavlou & Fygenson, 2006). PBC is defined as an individual's perception of how easy or difficult it would be to achieve a behavior (Ajzen, 1991). To differentiate PBC from attitude, Ajzen (1991, pp. 184–185) emphasized PBC may be particularly unrealistic "when a person has relatively little information about the intended behavior, when requirements or available resources have changed, or when new and unfamiliar elements have entered into the situation." Therefore, applied to MICE mobile applications, it is possible to assume a MICE mobile app from which it is perceived as being ease to utilize is likely to increase the consumer's abilities and confidence in adopting MICE mobile applications. In this context, the following hypothesis is developed:

Hypothesis 4: Perceived ease of use is positively related to customers' perceived behavioral controls of mobile applications in the MICE industry.

Model of Goal-directed Behavior (MGB)

The MGB specifies desire transforms the reasons to act delineated by the TPB antecedents (i.e., attitudes, subjective norms, and perceived behavioral controls) into the behavioral intention. Although an individual has sufficient reasons to perform specific behaviors explained by the TPB antecedents to differentiate MGB from TPB, the individual requires motivational appeal to perform the behavior. Rather, this is contained with the desire to perform a specific behavior (Perugini & Bagozzi, 2001). Therefore, desire to perform a specific behavior is "a state of mind, whereby an agent has a personal motivation to perform an action" (Perugini & Bagozzi, 2004, p.71), that mediates the effects of the TPB antecedents on behavioral intention. Consequently, in line with the MGB, this study examines the following relationships.

Attitude is an individual's tendency to evaluate or appraise a behavior favorably or unfavorably (e.g., Ajzen, 1991; Cheng, Lam, & Hsu, 2006). In the TPB, positive attitudes toward a specific behavior reflecting assessment of the potential ramifications of their actions would strengthen an intention (Ajzen, 1991; Baker, Al-Gahtani, & Hubona, 2007). Then, it leads to a desirable consequence as a result of performing the specific behavior. In line with the TPB, attitudes toward adopting technology have been extensively studied (Cheng & Cho, 2011; Huh et al, 2009; Kim et al., 2009). For example, there is a positive relationship between attitude toward use and intention to adopt innovative technologies (Kim et al., 2009). However, in the MGB, the role of attitude is different from the existing theories. It is proposed that attitude of an individual does not directly affect the intention, but it indirectly

affects intention via desire (Perugini & Bagozzi, 2001; Prestwich, Perugini, & Hurling, 2008). Thus, applied to the MICE mobile applications, attitude toward mobile applications in the MICE industry reflecting overall evaluation to ease of use and usefulness would exert a positive influence on a consumer's desire, and lead to a behavioral intention to utilize MICE mobile applications. Thus, based on the literature review and previous studies regarding attitudes and desire, the following hypothesis is suggested:

Hypothesis 5: Attitudes toward mobile applications in the MICE industry have a positive influence on desire.

In general, PBC plays a dual role in the MGB (Kim &, Preis, 2015; Perugini & Bagozzi, 2001). First, along with attitudes, subjective norms, and anticipated emotions, PBC is a co-antecedent of desire. Second, together with desires and habits, it is a co-determinant of behavioral intentions. However, unlike other determinant variables in the MGB, the role of perceived behavioral controls may influence desires and behavioral intentions, respectively. Thus, it is assumed consumers' self-perceptions of their own capabilities to utilize MICE mobile applications can reinforce the consumer's desires and behavioral intentions to adopt MICE mobile applications. Therefore it is proposed:

Hypothesis 6: Perceived behavioral controls have a positive influence on desires toward mobile applications in the MICE industry.

Hypothesis 7: Perceived behavioral controls have a positive effect on behavioral intentions to utilize MICE mobile applications.

Subjective norm (SN) refers to "the person's perception of the expectations of important others about the specific behavior" (Fishbein & Ajzen, 1975, p. 302). According to Perugini and Bagozzi (2004), perceived social pressures to perform or not perform certain

behaviors have a direct impact on desire and an indirect impact on behavioral intention through desire. Moreover, Lucas and Spitler (1999) emphasized subjective norms are more important than user's perceptions of the technology in predicting system usage and acceptance. In this regard, applied to the MICE mobile applications, SN reflects consumer perceptions of whether the adoption of MICE mobile applications could be accepted, encouraged, and implemented by the consumer's circle of influence. Thus, the following hypothesis is formulated:

Hypothesis 8: Subjective norms have a positive influence on desires toward mobile applications in the MICE industry.

Anticipated emotions refer to anticipated affective reactions of one's actions being successful or failing their intended goal when deciding whether or not to act (Bagozzi & Pieters, 1998). Anticipated emotions occur when individuals imagine positive emotions they would experience in the event of goal achievement, while negative emotions they would experience in the event of goal failure (Perugini & Bagozzi, 2001). Along with the conceptual distinction between positive and negative anticipated emotions, researchers have empirically-tested the role for each component across studies of the MBG. Using various research techniques, some researchers have confirmed both positive anticipated emotions (e.g., Bagozzi & Dholakia, 2002; Perugini & Bagozzi, 2001) and negative anticipated emotions (Perugini & Bagozzi, 2001) are distinct concepts and have independent effects on desire. However, other researchers have demonstrated the respective effect of positive (e.g., Bagozzi & Dholakia, 2002; Kim & Preis, 2015; Perugini & Bagozzi, 2001) and negative (Perugini & Bagozzi, 2001) anticipated emotions have significant effects on desire that vary across empirical findings of the MGB. Thus, due to the difference of empirical findings, the

intensity of the anticipated emotions should be cautiously examined and applied. Therefore, in the case of consumer acceptance of MICE mobile applications, it is possible to assume a consumer tends to utilize mobile applications to reinforce positive emotions, if their previous mobile applications experiences with them are satisfactory. However, they stop using mobile applications to avoid negative emotions, if the applications experiences with them are dissatisfactory (Bagozzi & Dholakia, 2002). Therefore, the following hypotheses are formulated:

Hypothesis 9: Positive anticipated emotions have a positive effect on desires toward mobile applications in the MICE industry.

Hypothesis 10: Negative anticipated emotions have an adverse effect on desires toward mobile applications in the MICE industry.

In the MGB, it is hypothesized past behaviors tend to predict desires and behavioral intentions through frequency of past behaviors (Perugini & Bagozzi, 2001, 2004). However, there is some debate about the meaning of these relationships. One argument is the relationship between frequency of past behaviors, desires, and intentions is mainly a reflection of temporal stability, since frequency indicates the performance of a behavior within typically 1 year (Kim & Preis, 2015; Song, You, Reisinger, Lee, & Lee, 2014). However, Ajzen (2002) argued frequency of past behavior is not a sufficient indicator of the presence of habit. In other words, factors that influenced past behaviors continue to influence desires and intentions, but frequency of past behaviors do not cause future behaviors. A second argument is even though the frequency of past behavior is regarded as a proxy of habit, the passage of chronological time can result in the formation of differing levels of habit, depending on the extent of interactions and familiarity developed with a certain

behavior. For example, in a specific period of time, say 1 year, different individuals can form different levels of habits, depending upon their past experiences (Venkatesh, Thong, & Xu, 2012). Consequently, the construct, frequency of past behaviors, is excluded.

Instead of the frequency of past behaviors, this study considers habit as a construct that reflects automatic responses in specific situations (Limayem & Hirt, 2003). Habit has been frequently investigated under past behaviors and has been shown to have significant effects on desires and intentions (Conner & Armitage, 1998). For instance, when behavior is repeated and becomes habitual, it is guided by automated cognitive processes, rather than by elaborate decision processes (Aarts, Verplanken, & van Knippenberg, 1998). In addition, habit plays a role in technology utilization (Goodhue & Thompson, 1995; Limayem et al. 2007). The empirical finding about the role of habit in technology is a strong predictor of future technology use (Kim & Malhotra, 2005). Thus, examining the effect of habit on desires and behavioral intentions can improve our understanding of MICE mobile applications adoption. Therefore, this study proposes habit affects both desires and behavioral intentions to utilize MICE mobile applications as follows:

Hypothesis 11: Habit has a positive effect on desires toward mobile applications in the MICE industry.

Hypothesis 12: Habit has a positive effect on behavioral intentions to utilize MICE mobile applications.

In the MBG, desire is well-known for deriving appraisals of the target behaviors (i.e., attitudes, subjective norms, perceived behavioral controls) and their referent personal goals (i.e., anticipated negative and positive emotions), lead to the intention to perform the behaviors. However, according to Leone et al. (2004), desire may not always mediate all the

effects of determinants on intention. Desire could be a direct antecedent of intention, since the criticality of desire in individuals' decision-making processes and rational-choice behaviors are suggested by emerging literature (Bagozzi & Dholakia, 2006; Perugini & Bagozzi, 2001, 2004). In a sense, the MGB supports this view by specifying desire as the most proximal determinant of behavioral intentions (Bagozzi, 1992; Leone, Perugini, & Ercolani, 1999; Perugini & Bagozzi, 2004; Prestwich et al., 2006; Song et al., 2012). Applied to MICE mobile applications, desire toward mobile applications in the MICE industry is defined as a state of mind; whereby, a customer has a personal motivation to utilize MICE mobile applications. When a customer's desires are toward mobile applications in the MICE industry, the customer has a tendency to believe, think, and behave in certain ways to use the mobile applications. In a sense, greater desires toward mobile applications in the MICE industry likely increase behavioral intentions to utilize MICE mobile applications. In addition, intention to utilize MICE mobile applications is defined as an individual's likelihood to engage in online transactions via MICE mobile applications. The present study postulates desire has a positive effect on intention to utilize MICE mobile applications; whereas, other antecedents in the MGB affect intention through desire. Thus, the following hypothesis is proposed:

Hypothesis 13: Desire has a positive effect on intentions to utilize MICE mobile applications.

Conceptual Model

While both technology acceptance perspectives and consumer behavior perspectives raise interesting directions for ongoing research and theorizing, there is no strong, empirical evidence that any single research has truly solved the issue of understanding consumer

behaviors of mobile applications in the MICE Industry. Therefore, this study aims to develop a comprehensive approach of consumer behaviors that change where a combination of the TAM and the MGB may provide long-term adherence. Specifically, this study expands and deepens cognitive and attitudinal variables in the TAM by incorporating constructs from three new theoretical areas (habitual, motivational, and affective/emotional processes) of MGB and by hypothesizing a different theoretical flow. Table 1 summarizes the definitions of these variables. The hypotheses give rise to the structural model depicted in Figure 5.

Table 1.

Definition of the Variables

Construct	Definition	Adapted from
Perceived Usefulness	The extent to which a consumer believes using MICE mobile applications would enhance him or her effectiveness in the overall MICE experience.	Davis (1989)
Perceived Ease of Use	The extent to which a consumer believes using MICE mobile applications would be effortless.	Davis (1989)
Attitude	A consumer's evaluation of the desirability of using MICE mobile applications.	Perugini & Bagozzi (2001)
Subjective Norm	A consumer's perceptions of the expectations of others about the adoption of MICE mobile applications, which result from perceiving others want one to utilize MICE mobile applications.	Ajzen (1991, p. 183)
Anticipated Emotions	Positive emotional responses formed when individuals pre-factually consider goal achievement. Negative emotional responses formed when individuals pre-factually consider goal failure.	Perugini & Bagozzi (2001)
Perceived Behavioral Control	A consumer's self-perception of their own capabilities to utilize MICE mobile applications can reinforce the consumer's desire, and behavioral intention to adopt MICE mobile applications.	Ajzen (1991)
Desire	A state of mind whereby a customer has a personal motivation to utilize MICE mobile applications.	Richetin et al. (2008)
Habit	Habit represents a variable that measures the frequency of past behaviors. Habit is developed through frequent usage in a stable context and this acts as an automatic link between a desire to act and a specific behavioral intention.	Perugini & Bagozzi (2001)
Intention to Use	The user's judgment about the likeliness to engage in online transactions via MICE mobile applications.	Gillenson & Sherrell (2002)

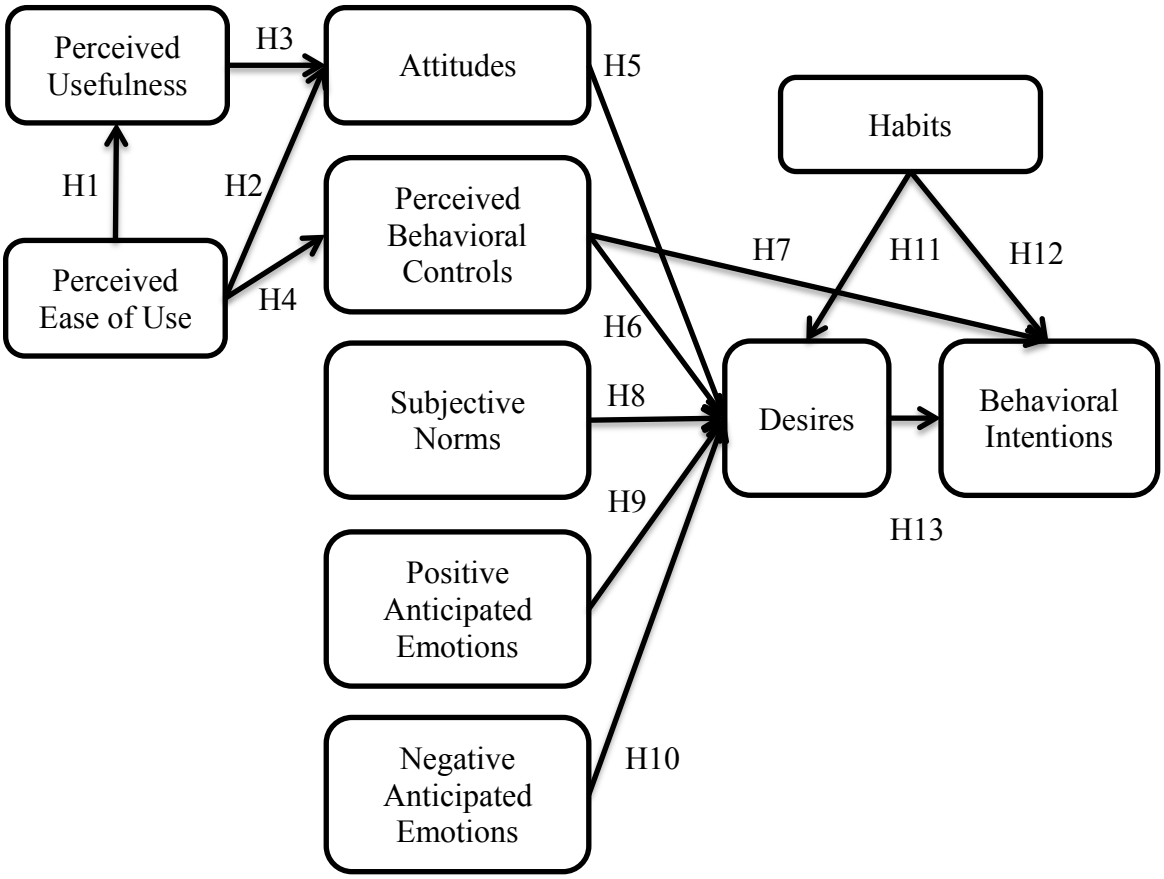


Figure 5. Theoretical Conceptual Model

Chapter Summary

Chapter 2 provided a review of recent literature on how technology has changed the practice of the MICE Industry. Also, it provided an overview of the theories related to the acceptance of technology. Then, it examined the literature related to the consumer behavior to understand the theoretical foundation of customers' decision-making processes for utilization of mobile applications in the MICE industry. By having an understanding of the ways in which technology acceptance and consumer behavior factors are related, this study suggested the comprehensive models, including factors influencing customers' behavioral intentions of using mobile applications.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

Chapter 3 introduces the research methods utilized to examine the hypotheses formulated in Chapter 2. The first section discusses the development of the survey instruments and tools. The second section examines the definition of key terms and variables. The third section discusses the sampling and data collection procedures. The fourth section describes the statistical analysis processes.

Survey Instrument

Based on a comprehensive literature review, a self-administered and closed-ended questionnaire was developed to measure the assessment items. The study adopted previously developed and validated measurement items with slight modifications to better fit the current study (Ajzen & Fishbein, 1980; Churchill, 1979; Davis, 1989; Goodhue & Thomson, 1995; Kline, 2005; Schrier, 2009). All constructs in this study were measured with multiple items (Straub, Boudreau, & Gefen, 2004). By using multiple indicators to measure theoretical constructs, this study can increase validity covering various facets of the construct (Kline, 2005). An extensive literature review on consumers' behaviors, technology acceptance behaviors, and psychosocial theories was conducted to elicit a preliminary list of measurement items for this study (Ajzen & Fishbein, 1980; Ajzen & Madden, 1986; Bagozzi et al., 1998; Carrus et al., 2008; Davis, 1989; Goodhue & Thomson, 1995; Perugini & Bagozzi, 2001, 2004).

The items were utilized in an attempt to predict the two constructs associated with the TAM model—perceived usefulness and perceived ease of use—as well as eight constructs for MGB—attitudes, subjective norms, perceived behavioral controls, desires, positive anticipated emotions, negative anticipated emotions, behavioral intentions, and past

behaviors. Also, to understand the sample's characteristics, demographic and behavioral inquiries were included in the questionnaire.

Measurement of the Technology Acceptance Model (TAM) constructs

Items for TAM constructs (i.e., PU and PEU) were adapted from previous literature (Davis, 1989; Kim et al., 2008). The items for these two constructs were modified within the context of the MICE technology environment (Table 2). Four items were used to measure perceived ease of use (Davis, 1989; Kim et al., 2008) and five items were used to measure perceived usefulness (Davis, 1989; Kim et al., 2008).

Table 2

Measurement of the Technology Acceptance Model (TAM) constructs

Construct	Scale Item
Perceived Ease of Use	(T1_1) Learning to operate event mobile applications is easy for me. (T1_2) It is easy for me to become skillful at using event mobile applications. (T1_3) I find the use of event mobile applications is easy. (T1_4) My interactions with event mobile applications are clear and understandable.
Perceived Usefulness	(T1_5) Mobile applications are useful in my event experiences. (T1_6) Mobile applications enhance the quality of my event experiences. (T1_7) Mobile applications enable me to have more convenient event experiences. (T1_8) Using mobile applications increase my event productivity. (T1_9) Using mobile applications enhance the effectiveness on my event trips.

Measurement of the Model of Goal-directed Behavior (MGB) constructs

The second part of the survey included questions regarding MGB. All items for the eight constructs were measured using a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Attitudes, Subjective Norms, & Perceived Behavioral Controls

The survey asked respondents to rate their attitudes toward utilizing mobile applications, while attending an event. To measure attitudes, the instruments were adopted from Ajzen (1991), Ajzen and Fishbein (1973), and Venkatesh et al. (2003) with modifications to reflect mobile applications adoption within the context of the MICE technology environment. Also, the survey was designed to gather social norms and perceived behavioral controls related to utilizing MICE mobile applications measured by four items, respectively (Nysveen, Pedersen, & Thorbjørnsen, 2005a; Rivis & Sheeran, 2003).

Table 3.

Measurement of Attitudes, Subjective Norms, & Perceived Behavioral Controls

Construct	**Scale Item**
Attitudes	(M1_1) Using mobile event applications is a good idea. (M1_2) I like the idea of using event mobile applications. (M1_3) Event mobile applications make my trip more interesting. (M1_4) I like traveling to events that have mobile applications created for the specific event.
Subjective Norms	(M1_5) I want to use event mobile applications because my colleagues do so. (M1_6) My peers think I should use event mobile applications. (M1_7) I think there is social pressure regarding event mobile applications.
Perceived Behavioral Control	(M2_1) I am confident that if I want, I can use event mobile applications. (M2_2) I am capable of using event mobile applications. (M2_3) I have enough time to use event mobile applications. (M2_4) There are factors preventing me from using event mobile applications.

Desires

This study assumes desires, emanating from appraisals of the target behavior and its anticipated emotions, lead to the intention to utilize MICE mobile applications. As shown in Table 4, desire was measured using four items with modifications to reflect MICE mobile applications adoption (Perugini & Bagozzi, 2001, 2004; Perugini & Conner, 2000).

Table 4.

Measurement of Desires

Construct	Scale Item
Desires	(M2_5) I would like to use event mobile applications. (M2_6) I wish to use event mobile applications. (M2_7) I crave to use event mobile applications. (M2_8) I have an urge to use event mobile applications.

Anticipated Emotions

In the MGB, there are two types of anticipated emotions— Positive and negative anticipated emotions. Both positive anticipated and negative anticipated emotions were assessed using four items (Bagozzi, Gurhan-Canli, & Priester, 2002; & Bagozzi, 2001).

Table 5.

Measurement of Anticipated Emotions

Construct	Scale Item
Positive Anticipated Emotions	(M3_1) If I can use an event mobile app during a trip for an event, I will be excited. (M3_2) If I can use an event mobile app during a trip for an event, I will be glad. (M3_3) If I can use an event mobile app during a trip for an event, I will be satisfied. (M3_4) If I can use an event mobile app during a trip for an event, I will be happy.
Negative Anticipated Emotions	(M3_5) If I can use an event mobile app during a trip for an event, I will be angry. (M3_6) If I can use an event mobile app during a trip for an event, I will be disappointed. (M3_7) If I can use an event mobile app during a trip for an event, I will be worried. (M3_8) If I can use an event mobile app during a trip for an event, I will be sad.

Habits

Four items for the habit scale were drawn from Limayem and Hirt (2003). In this study, habit represents a variable that measures past behaviors. In contrast to the deliberate rational concept of intention, habit refers to the non-deliberate, automatically inculcated responses that individuals may bring to mobile technology usage (Limayem & Hirt, 2003).

Table 6.

Measurement of Habits

Construct	Scale Item
Habits	(M4_1) The use of event mobile applications has become a habit for me. (M4_2) I am addicted to using event mobile applications. (M4_3) I must use event mobile applications. (M4_4) Using event mobile applications has become natural to me.

Intention to Use

Respondents were asked about their intention to use MICE mobile applications. Three questions were included in this part of the survey (Perugini & Bagozzi, 2004).

Table 7.

Measurement of Intentions to Use

Construct	Scale Item
Intentions to Use	(M5_1) I intend to use event mobile applications in the future. (M5_2) I recommend others use event mobile applications. (M5_3) It is likely I will use mobile applications created for specific events on a business trip in which I attend an event.

Measurement of Demographics Variables

This study included twelve demographic and technology usage-related variables (e.g., age, type of mobile device, income, and education level). Measurements for these variables are provided in Table 8.

Table 8.

Measurement of Demographic Variables

Variable	Measurement
Gender	Male, female.
Education	Indicated by indicating education level.
Income	Indicated by selecting household income range.
Age	Indicated in years by selecting the appropriate range.
Ethnicity	African American/Black, Asian, Caucasian/White, Hispanic/Latino.
Occupation	Professional. Technician, Business Person, Services, Office Worker, Civil Servant, Homemaker, Student, Faculty, Artist, Other.
Marital Status	Single, Never married, Married without children, Married with children, Divorced, Separated, Widowed, Living w/ partner.
Primarily purpose for traveling	Attend Meetings, Incentive tours, Conferences, Conventions, Trade shows, Exhibitions, Festivals, Fairs, Other.
Average number of mobile applications	Average usage of mobile applications per day.
Type of mobile device	Smart phone, Tablet, Laptop, Portable mp3 player, Portable game system.
Stage of the travel experience to utilize mobile applications	Before the trip, At the terminal or dock, On-board your mode of transportation, At the destination, After the trip.
Type of MICE-related mobile applications used in the last 12 months	Airline tickets, Amusement/theme park, Conventions and Visitors Bureau, Destination information, Destination maps, Destination weather, Event information, Hotel Internet connection, Lodging information, Menu information for restaurants, Restaurant, Self-guided walking tours, Transportation, Other.

Pilot Test

A pilot test was undertaken to ensure content validity of the items and assess the clarity of items, as well as the length of the instruments, the format, and the wording of the scales (Churchill & Iacobucci, 2002). A self-administered questionnaire was developed and

pretested on 20 graduate students, faculty members, and staff at a Midwestern university who either specializes in information technology or hospitality management to examine the survey for clarity and timeliness. To assure content validity, the participants were asked to review and refine the preliminary generated items. Based on the feedback gathered, the wording of a few items was changed for clarity purposes. For example, the instructions of the original questionnaire, “please indicate your responses using the following scales” was changed to “please rate your level of agreement with the following statements about mobile technology.”

Survey Development Tool

The questionnaire for this study was administered using Qualtrics, a company that specializes in online survey creation. Page one of the survey included a brief description of the study and an informed consent document. The survey asked participants to verify whether they have read the given information and agree to participate in the survey. If the potential participants agreed to participate after reading the informed consent document, they selected "I Agree” and they continued with the survey. If they did not wish to participate, they selected the " I Do Not Agree" and were terminated from the survey at this point. Participants were able to skip questions throughout the survey and were able to terminate the survey at any time. Following the informed consent, participants were asked a screening question to determine whether potential participants are over 18 years of age. The potential respondents were asked an additional screening question to determine if they had attended business events and had experience with MICE-related mobile applications. After answering the screening questions, they were asked to answer the survey.

Data Collection Procedure

Data collection

All materials and procedures for this study, including the consent form, the questionnaire, and the data collection procedure, were approved through the Institutional Review Board (IRB) of Iowa State University (Appendix A). Upon approval from the IRB, data were collected between November 11–18, 2015. For the present study, Qualtrics provided a unique, uniform resource locator (URL). The URL was then posted on Amazon Mechanical Turk (MTurk), an online convenience sample identified by a crowdsourcing platform to recruit potential respondents. The sample consisted of individuals who had attended business events and had experience with MICE-related mobile applications. An online survey link was opened to registered individuals to complete the questionnaire voluntarily. All participants were recruited from MTurk, a promising interface holding an online panel representing the U.S. population (Berinsky, Huber, & Lenz, 2012).

For this study, MTurk was selected because it could provide a diverse population pool in terms of age, gender, and socio-economic status. Therefore, it was expected MTurk is more likely to increase generalizability of the findings compared to studies only using limited participants, such as a university setting (Mason & Suri, 2011). To recruit participants, MTurk utilized its crowdsourcing system where the survey was distributed to a population of thousands of anonymous potential participants throughout the U.S. for completion (Sorokin & Forsyth, 2008). The survey posted on the MTurk website was visible only to participants who meet the predefined criteria (e.g., age, location). All respondents who completed a survey received 50 cents as an incentive.

Compared with other traditional approaches, online surveys have several advantages. These include (1) diverse subject pool, (2) low cost, (3) interactivity, (4) high accessibility to the respondent without time, (5) geographic flexibility, and (6) convenience for data entry and checking (Mason & Suri, 2011; Stopher, Collins, & Bullock, 2004). However, the limitations for this approach should be acknowledged, specifically, potentially low response rates and non-response bias that often lead to a convenience sample (Gravetter & Forzano, 2010; Mason & Suri, 2011).

Data screening

After reading a brief description and the previews for the survey, potential participants accepted to complete the survey. When the potential participants accessed the website, they were asked screening questions to determine whether their responses owned mobile devices (e.g., smartphones, tablet PCs, iPods, etc.) and utilized mobile applications in the past 12 months. A total of 1,504 recipients clicked on the survey link. Individuals who passed the screening questions were qualified to continue with the actual questionnaire. However, 666 recipients were not qualified to continue and the remaining 838 participants continued with the actual questionnaire. During the questionnaire, each respondent was also asked to answer two attention checks to assure participants were thoroughly reading each question, “to insure all participants are thoroughly reading each question please check disagree” and “to insure all participants are thoroughly reading each question please check strongly agree.” Only the results from completed surveys that correctly responded to these questions were used for the final analysis of the data. Of the 838 respondents who completed to the questionnaire, 668 respondents passed the attention checks.

Tests for normality were conducted. Box and whisker plots revealed univariate outliers for several variables, which were deleted from the data set. After eliminating these outliers, normality assumptions were examined in terms of skewness and kurtosis. According to Kline (1998), skewness within a range between -3 and 3, and a kurtosis within a range between -10 and 10 are considered acceptable. Since all variables in the study were within the acceptable ranges, no further transformations of the variables were undertaken. Also, a frequency check for all variables was conducted to identify missing data. After deleting the outliers and the missing data, the sample size was reduced from 668 to 504.

A final sample size of 504 was used for this study's analysis. According to various approaches for deciding on the appropriate sample size, sample sizes should be at least 200 observations (Anderson & Gerbing, 1988; Reinartz, Haenlein, & Henseler, 2009). Others specifically suggested a minimum requirement for SEM when the number of population was more than 5,000. The sample size should be more than 400 (Gay & Airasain, 2003). According to these studies, this study meets the sample size recommendations.

Data Analysis Procedures

Statistical analysis was performed using the Statistical Program for Social Sciences version 23.0 (SPSS 23) and AMOS version 23 (AMOS 23). The maximum likelihood estimate for the covariance matrix was assessed. Data analysis consisted of two phases: (1) descriptive statistics and (2) two-step Structural Equation Modeling (SEM) approach (Anderson & Gerbing, 1988). Descriptive statistics employed SPSS 23 to explain demographic and mobile-related characteristics of the respondents. This study employed Amos 23.0 to test the conceptual model and hypotheses with a two-step approach (Anderson & Gerbing, 1988). The first step, Confirmatory Factor Analysis (CFA), was employed to

evaluate the reliability and validity of the scales for the measurements (Hair, Black, Babin, & Anderson, 2010). In the second step, this study tested the structural hypotheses of the proposed model (Kline, 2005).

Measurement model

In the two-step procedure for SEM, the overall measurement quality of the proposed model was assessed prior to the structural model using CFA. The key characteristic for CFA is model or causal relationships are specified *a priori* supported by theory and/or previous research. In particular, causal structure is hypothesized in advance and the number of latent variables is decided by the research. Also, it is possible to examine whether a latent variable influences an observed variable, and the direct effects or factor loadings can be set to different values to test multiple models fixed to constants or forced equal to other loadings. Moreover, measurement errors may correlate with each other (Harman, 1976).

In terms of evaluating the measurement model, it needs evaluated using CFA to demonstrate an adequate model fit, and to ensure a satisfactory level of measure reliability and validity for the underlying variables and their respective factors. Individual reliability is examined by using standardized regression weighted values (i.e., standardized factor loading) of observed items of latent variables. As suggested by Hair et al. (2010), factor loadings greater than 0.70 indicate the items can appropriately represent the corresponding construct considered acceptable for individual item reliability. In addition, a reliability test was conducted to assess internal consistency for each construct. To verify the internal consistency defined as the magnitude of consistency or homogeneity among the individual items of a scale, Cronbach's *alpha* (Nunnally, 1978) was used. Cronbach's *alpha* is a range from 0.0 to 1.0 that measures the reliability of the instruments (Peterson, 1994). Cronbach's *alpha* scores

reflect how well a set of questions measures a specific construct. In this study, the internal consistency of the surveys was evaluated at the minimum level of 0.70, indicating the specific construct may not accurately measure what it is expected to measure. Therefore, Cronbach's *alpha* scores should be greater than the benchmark of 0.70 to be considered adequate (Peterson, 1994).

Composite Reliability (CR) and Average Variance Extracted (AVE) were used to assess convergent validity construct loadings. Convergent validity is defined as the extent to which indicators of specific constructs share a high proportion of variables in common (Hair et al., 2011). Validity was assessed for all constructs using three methods: (1) CR is above the 0.70 (Fornell & Larcker, 1981); (2) AVE is greater than 0.50 (Dillon & Goldstein, 1984); and (3) standardized factor loading should exceed 0.70 (Nunnally, 1978). In addition, discriminant validity for this study was determined by assessing the maximum shared squared variances (MSV) and the average shared squared variances (ASV), both should be lower than the AVE for all constructs in the scale.

The chi-squared (x^2) statistic and one additional absolute fit index, Root-Mean-Square Error of Approximation (RMSEA), together with two incremental fit indices, such as the Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI), and a parsimony index, (x^2 /df), were utilized to confirm measurement model validity (Markland, 2007). The chi-squared (x^2) value is used for evaluating overall model fit to assess the magnitude of discrepancies between the sample covariance matrix and the covariance matrix (Hooper, Coughlan, & Mullen, 2008). A significant conventional chi-squared test (x^2) statistic indicated a poor fit, while a non-significant chi-squares ($p > .01$) indicates an adequate model fit in which the null hypothesis is not rejected. However, the chi-squared statistic could be misleading in three

ways: (1) the model is relatively complex; (2) large sample size, and (3) violation of the assumption of multivariate normality (Byrne, 2001; Kline, 2005). Thus, additional fit indices were considered given the large sample size of this current study.

Several fit indices were developed to assess model fit. RMSEA is the index of absolute fit and is important to evaluate model fit. RMSEA measures how well the model fits the population covariance matrix at a 95% confidence interval (Browne & Cudeck, 1993). Index values of RMESA demonstrate a good fit when the indices value is below 0.08 is a good fit, although between 0.08 and 0.10 is acceptable (Byrne, 1998; Diamantopoulos & Siguaw, 2000). Other incremental fit indices used for model estimation included CFI and TLI. The cutoff value for CFI and TLI is recommended because each value greater than .90 indicates a satisfactory model fit (Hu & Bentler, 1998; Kline, 2005).

Structural Equation Model (SEM)

After completing the CFA, the structural model was analyzed utilizing AMOS 23 to evaluate and estimate causal relationships with combining statistical data and qualitative causal assumptions. The key characteristic of the structural model is to allow examination of a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete (Ulman, 1996). SEM is also able to examine the hypothesized path simultaneously in a multivariate context and specifies the structural for both direct and indirect relationships among latent variables (Schumacker & Lomax, 1996). To obtain accurate estimates, the analysis provides a variety of fit indices to determine whether the data fit the model and the model is reasonable. In this study, the x^2 statistic, RMSEA, TLI, and CFI were utilized to identify the overall fit of the model to data. The recommended value for each fit index is shown in Table 9.

Table 9.

Recommended Values of Fit Indices

Fit index	Suggested value
x^2 statistic	Significant p-values expected
RMSEA	≤ .08
CFI	≥ .90
TLI	≥ .90

Note. x^2 = chi-squared; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index.

Chapter Summary

Chapter 3 discussed the methodology used in this study including questionnaire development, definition of variables, sampling procedures, and data collection. This chapter also provided a description of data analysis techniques utilized in this study. The next chapter will provide an analysis of the results from the collected data.

CHAPTER 4: RESULTS AND DISCUSSION

Chapter 4 reports the results of analysis, which includes sample description, descriptive statistics of the variables, and measurement and structural equation model tests. In addition, this chapter presents the findings related with testing the hypotheses.

Sample Description

The respondents were characterized as follows. Of the 504 survey participants, 55.4% were female and 44.6% were male. Approximately 48% of the respondents (48.4%) were between 25 and 34 years of age, followed by between 35 and 44 years (23.2%). A strong majority of the participants (66.7%) had at least an associate's degree. A majority described themselves as Caucasian/white (75.8%); followed by African American (8.7%), Asian (6.8%), Hispanic (5.8%), and others (3.0%). When annual household income was queried, 38.4% reported incomes between $40,000 and 69,999 while a nearly similar-sized group (35.9%) reported incomes under $39,999. About 42% of sample was married and more than one-third of the respondents (38.1%) were single. In terms of occupation, office workers were the largest proportion (30.4%) and service providers comprised the second largest proportion (18.7%). When traveling for business, about 29.8% described their primary purpose for traveling was to attend meetings, 27.2% attended conferences, and 13.9% visited conventions. Table 10 summarizes the demographic characteristics of the respondents.

Table 10.

Demographic characteristics of respondents

Demographic Characteristics		Frequency	Percentage
Biological Gender (n=504)	Male	225	44.6
	Female	279	55.4

Table 10 (continued)

Demographic Characteristics		Frequency	Percentage
Ethnicity (n=504)	African American/Black	44	8.7
	Asian	34	6.8
	Caucasian/White	382	75.8
	Hispanic/Latino	29	5.8
	Other	15	3.0
Ages (n=502)	18 – 24 years	73	14.5
	25 – 34 years	244	48.4
	35 – 44 years	117	23.2
	45 – 54 years	50	9.9
	55 – 64 years	12	2.4
	Older than 64 years	6	1.2
Education Level (n=504)	High School Degree/G.E.D.	39	7.7
	Trade/Technical School	11	2.2
	Some College, but no degree	118	23.4
	Associate Degree	49	9.7
	Bachelor's Degree	206	40.9
	Graduate Degree	81	16.1
Annual Household Income (n=503)	Less than $20,000	57	11.3
	$20,000 to $39,999	124	24.6
	$40,000 to $59,999	106	21
	$60,000 to $79,999	88	17.4
	$80,000 to $99,999	53	10.6
	$100,000 to $119,999	29	5.8
	$120,000 to $139,999	23	4.6
	Over $140,000	29	5.8
Marital Status (n=497)	Single, never married	192	38.1
	Married without children	51	10.1
	Married with children	161	31.9
	Divorced	21	4.2
	Living w/ partner	72	14.3
Occupation (n=496)	Professional	38	7.5
	Technician	55	10.9
	Business person	31	6.2
	Service	94	18.7
	Office worker	153	30.4
	Civil servant	15	3.0
	Student	22	4.4
	Educator	36	7.1
	Artist	13	2.6
	Other	38	7.6

Table 10 (continued)

Demographic Characteristics		Frequency	Percentage
Primarily purpose for traveling (n=504)	Attend Meetings	150	29.8
	Incentive Tours	10	2.0
	Conferences	137	27.2
	Conventions	70	13.9
	Exhibitions	14	2.8
	Festivals	41	8.1
	Fairs	15	3.0
	Trade shows	28	5.6
	Other	39	7.7

With regard to mobile-related profiles, participants indicated they used 8.53 mobile applications daily. A large majority of the sample (94.6%) used smartphones, while 25.4% of the respondents used tablets. In terms of the stage of travel experience, more than 88% of the respondents utilized their mobile application at the destination, followed by before the trip (87.9%), at the terminal or dock (63.7%), on-board (60.7%), and after the trip (43.1%). When the respondents were asked about the type of hospitality or tourism-related mobile applications they had used during the last 12 months, 68.1% had utilized mobile applications to search the destination's weather and 64.1% had used an app to find the destination map.

Table 11.

Mobile-related Profile of Respondents

		Frequency	Percentage
Type of mobile device (Multiple check) (n=504)	Smartphone	477	94.6
	Tablet	128	25.4
	Laptop	141	28
	Portable mp3 player	15	3
	Portable game system	14	2.8
Stage of the travel experience to utilize mobile applications (Multiple check) (n=504)	Before the trip	493	87.1
	At the terminal or dock	321	63.7
	On-board	306	60.7
	At the destination	443	87.9
	After the trip	217	43.1

Table 11 (continued)

		Frequency	Percentage
Type of hospitality or tourism related mobile applications used in the last 12 months (Multiple check) (n=504)	Airline tickets	239	47.4
	Amusement/theme park	119	23.6
	Conventions and Visitors Bureau	86	17.1
	Destination information	261	51.8
	Destination maps	323	64.1
	Destination weather	343	68.1
	Event information	202	40.1
	Hotel Internet connection	196	38.9
	Lodging information	198	39.3
	Menu information for restaurants	239	47.4
	Restaurant	295	58.5
	Self-guided walking tours	36	7.1
	Transportation	205	40.7
	Other	5	1

Measurement Model

Overall fit of measurement items in the conceptual model was assessed using CFA (Anderson & Gerbing, 1992), with the AMOS 23 and maximum likelihood as the estimation method, appropriate for testing structural equation models that have a well-developed underlying theory. The hypothesized measurement model included 39 observed variables reflecting 10 latent factors: (1) Perceived Ease of Use (PEA), (2) Perceived Usefulness (PU), (3) Attitudes (ATT), (4) Subjective Norms (SN), (5) Perceived Behavioral Controls (PBC), (6) Desires (DE), (7) Positive Anticipated Emotions (PAE), (8) Negative Anticipated Emotions (NAE), (9) Habits, and (10) Behavioral Intentions (BI).

The initial measurement model for this study was comprised of 39 measurement items. The results of CFA demonstrated the estimation of the initial measurement model did not fit well. A x^2 value of 2746.507 with 657 degrees of freedom was statistically significant at $p < .001$, which indicates the model is not a perfect fit to the data. In addition, even though x^2/df value (4.180) and RMSEA (.080) were acceptable, the other model fit indices used in

the study were not acceptable (TLI = .851, CFI = .868). Overall, since the initial measurement model did not demonstrate acceptable model fit with the data, it was required to investigate the respecification of the measurement model to improve the overall model fit.

Respecification of the measurement model

Based on the initial CFA results, model fit was re-evaluated after each modification. Standardized factor loading ranged from .364 to .943. The factor loadings for each item were below 0.70, demonstrating that some items did not appropriately represent the corresponding construct. Therefore, eight items with factor loadings below 0.70 were excluded (Hair et al., 2010). Two items each from ATT (M1_3, M1_4), PBC (M2_3, M2_4), Desires (M2_7, M2_8) and Habits (M4_1, M4_4), and 31 items were retained.

After deleting eight items, CFA was conducted with these 31 items. The CFA results showed a satisfactory model fit (see Table 12), while the standardized factor loadings for the 31 items were all significant ($\Lambda \geq 70$, $p < .05$). Although χ^2 was still significant (χ^2 = 971.397, χ^2/df = 2.497; CFI = .955; TLI = .946; and RMSEA = .055), x^2/df, TLI, CFI and RMSEA indicated a satisfactory model fit with the data (Hair et al., 2010).

Table 12.

Summary of Measurement Model Fit

Model	x^2	x^2/df	CFI	TLI	RMSEA
Specified Model	2746.507	4.180	.868	.851	.080
Respecified Model	971.397	2.497	.955	.946	.055

Note. x^2 = chi-squared; df = degree of freedom; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index.

Reliability and validity of the respecified measurement model

Internal consistency for each construct was verified by Cronbach's *alpha* and composite reliabilities. Cronbach's *alpha* estimate combined with the remaining items ranged

from .802 to .965, which suggest acceptable internal consistency in all constructs. Composite reliabilities of the constructs ranged from .806 to .965, which all exceeded the recommended threshold of .70 (ranging from .806 to .965) (Hair et al., 2010). Both Cronbach's *alpha* coefficients and composite reliabilities revealed the items are internally consistent.

Convergent validity was satisfactory in that the standardized factor loadings of the respecified measurement model are significant at the .001 and exceed .70 (refer to Table 13). This study also used AVE for each construct to contrast the convergent validity and obtained acceptable values greater than .5 (Fornell & Larcker, 1981). This demonstrated items composed a determined scale containing less than 50% error variance and converge on only one construct (refer to Table 13). As shown in Table 13, MSV and the ASV were both less than the AVE values, indicating a sufficient level of discriminant validity (Hair et al., 2010).

Table 13.

Assessment of the Reliability and Validity of the Measurement Model

Latent Factors	Standardized factor loadings		CA	CR	AVE	MSV	ASV
PEU	T1_1	0.875	.915	.918	.737	.523	.221
	T1_2	0.881					
	T1_3	0.877					
	T1_4	0.797					
PU	T1_5	0.742	.906	.908	.664	.570	.280
	T1_6	0.8					
	T1_7	0.85					
	T1_8	0.835					
	T1_9	0.841					
ATT	M1_1	0.885	.883	.883	.791	.570	.324
	M1_2	0.894					
SN	M1_5	0.833	.802	.806	.581	.144	.030
	M1_6	0.726					
	M1_7	0.723					

Table 13 (continued)

Latent Factors	Standardized factor loadings		CA	CR	AVE	MSV	ASV
PBC	M2_1	0.864	.883	.884	.792	.468	.222
	M2_2	0.915					
Desires	M2_5	0.951	.895	.900	.819	.504	.253
	M2_6	0.856					
PAE	M3_1	0.719	.909	.918	.738	.452	.235
	M3_2	0.91					
	M3_3	0.894					
	M3_4	0.898					
NAE (Reverse coded)	M3_5	0.939	.965	.965	.872	.243	.127
	M3_6	0.922					
	M3_7	0.932					
	M3_8	0.943					
Habits	M4_2	0.868	.888	.889	.800	.183	.074
	M4_3	0.92					
Intentions	M5_1	0.873	.853	.859	.671	.504	.289
	M5_2	0.82					
	M5_3	0.761					

Note. CA = Cronbach's Alpha; CR = composite reliability; AVE = average variance extracted; MSV = maximum shared squared variance; ASV = average shared squared variance.

To check discriminant validity, the test requires comparing the AVE for each construct with the squared inter-construct correlations (Hair et al., 2010). Fornell and Larcker (1981) suggested discriminant validity is established, if the AVE for each construct is greater than the squared correlation coefficients for corresponding inter-constructs. As shown in Table 14, the square root of the AVE for each construct in boldface exceeds the correlations between this construct and the other constructs. Overall, there was sufficient evidence to suggest appropriate convergent and discriminant validity for all constructs.

Table 14.

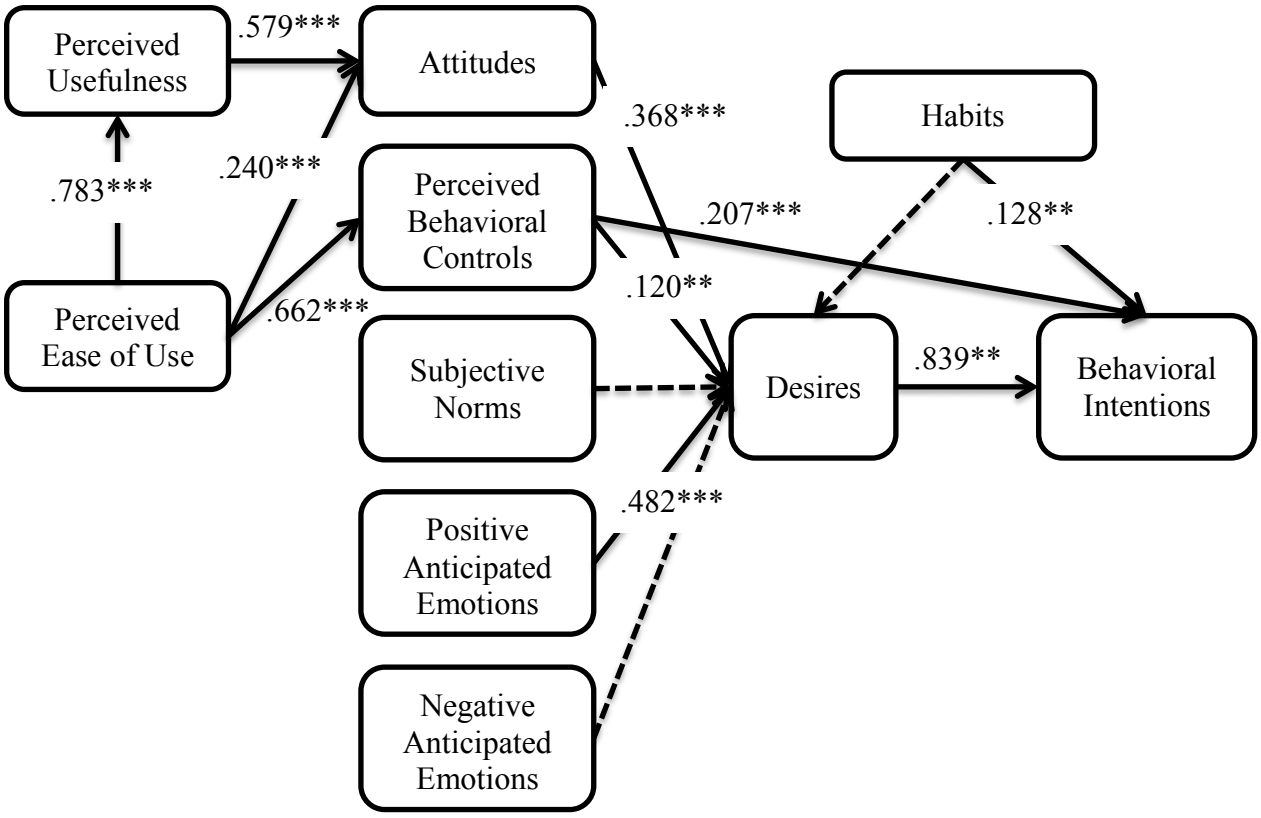
Assessment of Convergent and Discriminant Validity

Construct	1	2	3	4	5	6	7	8	9	10
1. PEU	**.858**									
2. PU	.723	**.815**								
3. ATT	.641	.755	**.890**							
4. SN	-.036	.128	.060	**.762**						
5. PBC	.635	.496	.684	-.139	**.890**					
6. Desires	.415	.568	.645	.074	.460	**.905**				
7. PAE	.367	.569	.566	.192	.315	.672	**.859**			
8. NAE	.315	.304	.468	-.214	.493	.341	.377	**.934**		
9. Habits	.123	.256	.189	.380	.285	.286	.428	-.092	**.894**	
10. Intentions	.475	.602	.689	.012	.552	.710	.653	.422	.354	**.819**

Note. Diagonal elements (bold figures) are the squared root of the AVE (the variance shared between the constructs and their measures). The values of the squared construct correlations are presented in the lower triangle of the matrix.

Structural Model

A structural model was conducted to examine the proposed hypotheses. In this study, the goodness-of-fit and the parameter of the SEM were estimated using the maximum likelihood estimation. The results are depicted in Figure 6. The overall fit of the model appeared acceptable with χ^2 = 1424.236, χ^2/df = 3.508, CFI = .922, TLI = .910, and RMSEA = .071. Moreover, the proposed model accounted for a substantial proportion of the variance (R^2) in five endogenous variables—61% of variance in PU, 43% of variance in perceived behavioral control, 61% of variance in attitude towards use, 43% of variance in desire, and 38% of variance in behavioral intention. These findings suggest the integration of TAM and MGB represents a fine, simple method to explain the behavioral intentions to utilize MICE mobile applications.



Note. **p < 0.01; ***p < 0.001; solid line: significant path,dotted line: non-significant path.

Figure 6. Path Analysis Results.

The estimates of the structural coefficients provide a fundamental test of the hypothesized causal relationships. As shown in Table 15, the results indicate ten of the thirteen hypotheses were statistically supported. First, the effects of PEU on PU was addressed. The expected relationship between PEU and PU (H1: $\gamma = .783$, $p < .001$) was supported by the path coefficients. In line with previous TAM studies, both PEU (H2: $\gamma = .240$, $p < .001$) and PU (H4: $\beta = .579$, $p < .001$) were positively related to users' attitudes (H3 and H4). That is, PU more significantly influenced attitudes toward mobile applications in the MICE industry than PEU. Perceived behavioral controls was also positively influenced by PEU (H4: $\beta = .579$, $p < .001$), in support of Hypothesis 4.

The next six hypotheses involved paths from antecedents of MGB to desires. Hypothesis 5, suggesting attitudes would be positively related to desires, was supported (H5: $\beta = .368$, $p < .001$). Hypothesis 6, examining the positive relationship between perceived behavioral controls and desires, was supported (H6: $\beta = .120$, $p < .01$). Hypothesis 9, stating positive anticipated emotions was positively associated with desires, was supported (H9: $\gamma = .482$, $p < .001$). However, subjective norms, negative anticipated emotions, or habits did not have a significant effect on desires. Therefore, Hypothesis 8, Hypothesis 10, and Hypothesis 11 were not supported, which is inconsistent with previous findings.

These last three hypotheses involved paths from perceived behavioral controls, habits, and desires to behavioral intentions. As hypothesized, the estimates of path coefficients of perceived behavioral controls on behavioral intention (H7: $\beta = .207$, $p < .001$) and habits on behavioral intentions (H12: $\beta = .128$, $p < .01$) were positive and statistically significant at the level of $p < .001$, which provided support for Hypothesis 7 and Hypothesis12. The final hypothesis, Hypothesis 13, examined the positive relationship between desires and behavioral intentions, was also supported (H13: $\beta = .839$, $p < .01$). The summary of these hypothesis testing results is illustrated in Table 15.

Direct and indirect effects

This study further examined the direct and indirect effects subsumed in the proposed model in an effort to gain further insights into the decision-making processes. Additional analyses were conducted to assess the mediating roles played by perceived usefulness, attitudes, perceived behavioral controls, and desires. The summary of the direct and indirect effects results is illustrated in Table 16.

Table 15.

Summary of the Hypothesis Testing Results

Hypothesis	Path	Estimate	Significant	Result
H1	PEU→ PU	.783	$p < .001$	Supported
H2	PEU → ATT	.240	$p < .001$	Supported
H3	PU → ATT	.579	$p < .001$	Supported
H4	PEU → PBC	.662	$p < .001$	Supported
H5	ATT → Desire	.368	$p < .001$	Supported
H6	PBC → Desire	.120	$p < .01$	Supported
H7	PBC → Intention	.207	$p < .001$	Supported
H8	SN → Desire	-.072	N.S.	Not supported
H9	PAE → Desire	.482	$p < .001$	Supported
H10	NAE → Desire	.035	N.S	Not supported
H11	Habit → Desire	.095	N.S.	Not supported
H12	Habit → Intention	.128	$p < .01$	Supported
H13	Desire → Intention	.839	$p < .01$	Supported

Note. N.S.: non-significant.

Table 16.

Summary of the Direct and Indirect Effects Results

Hypothesized paths		Direct effects	Indirect effects	Total effects
H1	PEU→ PU	.783***		.783
H2	PEU → ATT	.240***	.453	.693
H3	PU → ATT	.579***		.579
H4	PEU → PBC	.662***		.662
H5	ATT → Desire	.368***		.368
H6	PBC → Desire	.120**		.12
H7	PBC → Intention	.207***	.101	.308
H8	SN → Desire	-.072		-.072
H9	PAE → Desire	.482***		.482
H10	NAE → Desire	.035		.035
H11	Habit → Desire	.095		.095
H12	Habit → Intention	.128**	.08	.208
H13	Desire → Intention	.839**		.839
	PEU → Desire		.335	.335
	PU → Desire		.213	.213
	PEU → Intention		.418	.418
	PU → Intention		.179	.179
	ATT → Intention		.309	.309
	SN → Intention		-.06	-.06
	PAE → Intention		.404	.404
	NEA → Intention		.029	.029

Notes. **p < 0.01; ***p < 0.001

Discussion of Findings

As seen in Table 15, PEU has a positive relationship with PU for mobile applications in the MICE industry. This finding supports Hypothesis 1. As hypothesized in TAM, PEU predicts PU. In fact, it is the most influential predictor, suggesting a reduction in effort is a significant component of the utility an individual derives from a system (Davis, 1989). As previous research revealed, the relationship between PEU and PU inherited from the TAM (Huh et al., 2009; Lu et al., 2008; Morosan, 2014) has also been validated in the MICE mobile application context. This suggests consumers primarily focus on the functionality and experience of applications during cognitive evaluations. Thus, these results imply mobile applications should be designed with a low complexity to allow consumers to complete MICE-related tasks with ease.

The results from this study show a positive relationship between PEU and attitudes toward mobile applications in the MICE industry, supporting Hypothesis 2. These findings also indicate PU has a positive relationship with attitudes toward mobile applications in the MICE industry, which supports Hypothesis 3. PU, as indicated from these findings, seems to be a stronger predictor than PEU, of the two predictors of attitudes in the TAM—consistent with previous findings (Davis, 1989; Kim & Forsythe, 2008). Research demonstrated the utilitarian nature of information technology users (Kim & Forsythe, 2008). This study found users would rather use a technology that performs the task with more usefulness than a technology merely easy to use. In the context of the MICE industry, MICE mobile applications can offer consumers a possibility of completing their tasks and are generally characterized by effortless, efficient, speedy, useful, and an opportunity to optimize the interaction with the event.

Based on the results of Hypothesis 4, PEU has a significant positive relationship with PBC of mobile applications in the MICE industry. For consumers who utilize MICE mobile applications, the information environment can be very different than for customers who try to find information through desktop computers, guidebooks, or event booklets. This potentially indicates an explosion of information available on the mobile applications has led to more utilitarian customers demanding more control, less effort, and higher efficiency when utilizing MICE mobile applications.

Hypothesis 5 delineated the relationship between attitudes and desires. In the MGB, desires is considered a proximal cause of intentions; whereas, attitudes are considered a distal cause, whose influence is mediated by desires (Bagozzi, 1992; Kim & Preis, 2015). A positive relationship between attitudes and desires was found in this study. This shows a consumer has a positive attitude toward mobile applications in the MICE industry because it is useful and easy to use. This attitude can lead to desires to utilize MICE mobile applications. As might be expected, it appears attitudes toward mobile applications in the MICE industry reflect overall evaluation to ease of use and usefulness could exert a positive influence on a consumer's desire and lead to a behavioral intention to utilize the MICE mobile applications.

The positive effects of PBC on desires (Hypothesis 6) and the positive effect of desires on intentions (Hypothesis 7) were significant in the MICE study. This result confirmed previous research on PBC, which plays a dual role in the MGB (Kim & Preis, 2015; Perugini & Bagozzi, 2001). As Gefen, Karahanna, and Straub (2003) noted, PBC could be a key factor for decreasing consumers' uncertainty and vulnerability in decision-making processes. Specifically, this result supports the findings by Kim and Preis (2015), who reported PBC has a positive influence on consumers' desires and intentions to use mobile

devices. The results from this study indicate customers, who perceive they have behavioral control, have greater desires and intentions (Schuster, 2013). Likewise, consumers' self-perceptions of their own capabilities to utilize MICE mobile applications can reinforce the consumer's desires and behavioral intentions to adopt MICE mobile applications.

In contrast with expectations from this study, subjective norms do not exert a positive effect on desires, the effect of the subjective norms appears to be non-significant. Therefore, Hypothesis 8 was rejected. Even though this result contradicted the MGB, which specifies subjective norms influence desires (Perugini & Bagozzi, 2001), there are several empirical studies where subjective norms may not be a strong determinant for consumers' mobile technology acceptance. For instance, the non-significant relationship between subjective norms and desires is consistent with the findings by Kim and Preis (2015), who concluded using mobile devices is a common, growing practice among their target group, so they are not concerned about what others think. Also, Schuster (2013) reported immediate social proximity would have a limited impact on individuals' acceptance of mobile well-being services.

One possible explanation for this result is, as Kim and Preis (2015) suggested, since using mobile applications is common, as well as available tools and ease of use are also growing, consumers are less likely to be concerned about what others think. Another possible explanation for this result is this non-significant relationship might be caused by the inappropriate conceptualization of social norms (Armitage & Conner, 2001; Rimal & Real, 2005). According to previous studies (Kallgren, Reno, & Cialdini, 2000; Manning, 2009; Rimal, 2008), social norms consist of injunctive (perceived social pressure from others) and descriptive norms (perception of what others commonly do), and then the magnitude for each

norm's effects vary across studies. Therefore, mobile consumer behaviors can further examine the relationships between injunctive and descriptive norms, and desires by adding subdivided subjective norms to identify whether individuals and/or social groups are most influenced by the target audience or target behaviors.

Results from this study show PAE were found to exert a significant, positive influence on desires toward mobile applications in the MICE industry, supporting Hypothesis 9, while NAE does not have significant effects on desires, which contradicts what MGB proposed (Hypothesis 10). Although the results contradict the MGB, there are several previous studies consistent with the findings from the results of this study (e.g., Bagozzi & Dholakia, 2002; Kim & Preis, 2015; Perugini & Bagozzi, 2001; Schuster, 2013), which indicated only PAE influences desires. To explain this anomaly, assume a non-significant relationship between NAE and desires to indicate consumers usually do not consider their goal failure in the MICE mobile applications context at the stage of forming a desire, due to the relatively low risk nature of the behavior. In light of this, the functional and psychological benefits associated with the MICE mobile applications could attenuate the negative consequences related with goal failure and this negates the impact of NAE on acceptance of the mobile applications.

The influence of past behaviors on desires and behavioral intentions was examined to reveal the role of automatic and habitual processes in decision-making. However, past behaviors do not show a significant effect on desires. Therefore, Hypothesis 11 was rejected. The results for Hypothesis 11 are contrary to the results of Leone et al. (2004) and Perugini and Bagozzi (2001), who found a positive effect of past behaviors on desires. This finding implies the experienced consumer may not consider integrating the MICE mobile

applications into their routine mobile applications usage to their continuation of the applications, since they do not see the necessity of utilizing the applications, but only in the case of need (Varshney, 2003). On the other hand, this study confirmed the positive relationship between past behaviors and intentions, which supports Hypothesis 12. It is found that past behaviors have a positive effect on behavioral intentions to utilize MICE mobile applications, consistent with previous studies (Kim & Malhotra, 2005; Limayem & Hirt, 2003; Perugini & Bagozzi, 2001). These findings potentially indicate past behaviors have been considered one of the strong predictors of future MICE mobile applications use.

An examination of this study showed desire has a significant, positive relationship with intentions to utilize MICE mobile applications, which statistically supported Hypothesis 13. These findings are consistent with previous studies' (e.g., Bagozzi & Dholakia, 2002; Perugini & Bagozzi, 2001, 2004) views that desires is considered as a proxy of intention. This analysis indicates the more consumers desire mobile applications in the MICE industry, the more likely they will want to use it. Also, since behavioral intentions are considered as motivational factors that capture "how hard people are willing to try to perform a behavior" (Ajzen, 1991, p.181), behavioral intentions is the most influential predictor of behavior. Applied to this study, the higher behavioral intentions to utilize MICE mobile applications, the higher actual adoption of the mobile applications.

Direct and indirect effects

In this study, additional analyses were conducted to assess the mediating roles played by perceived usefulness, attitudes, perceived behavioral controls, and desires. First, PEU appeared to positively influence attitudes toward mobile applications in the MICE industry via PU. The direct effects of PEU on attitudes appeared significant and the indirect effect via

PU was apparent. These results implied PU could function as an important mediating variable between PEU and attitude. This finding was also rather consistent with prior research in the TAM literature, in that PEU still exerted substantial impact on attitudes.

Second, attitudes mediated the two TAM-related variables to influence desires toward mobile applications in MICE industry. Since the original theoretical conceptualization of TAM incorporated the attitude construct (i.e., Davis, 1986), this study also confirmed the role of attitude as a mediator. In assessing attitude, both PU and PEU were significant and direct predictors of attitudes, which, in turn, indirectly influenced desires. These findings imply PU and PEU play an important role to influence customers' attitudes toward mobile applications in the MICE industry, which influences their desires towards mobile applications.

Third, the indirect path coefficients showed PEU appeared to positively influence desires toward mobile applications in the MICE industry via PBC. These results implied as customers' PEU increased, they were more likely to have positive desires toward mobile applications in the MICE industry.

Finally, the MGB literature depicts desires mediate the influences of attitudes, subjective norms, anticipated emotions, and perceived behavioral controls on behavioral intentions (Perugini & Bagozzi, 2001). However, even though many empirical studies support this idea, this study's findings somewhat differ from the approach adopted in many recent MGB-related studies. Specifically, desires toward mobile applications in the MICE industry could not be a relevant mediating variable between past behaviors and intentions to utilize MICE mobile applications. Also, it is also doubted the indirect effects of SN and NAE on intentions via desires, since the direct effects of SN and NEA on desires were not significant. These results indicated the interpretation of the role of desire should be careful.

Chapter Summary

In this chapter, results of the statistical analysis were discussed. First, this study investigated the causal relationships reflected in the hypotheses. Second, the study additionally examined the direct and indirect effects subsumed in the proposed model. Table 15 shows the results regarding causal relationships. Table 16 illustrates the results of the direct and indirect effects. Third, this chapter presents the interpretations of the findings. The next chapter will discuss the key findings for this study, conclusions, implications, limitations, and recommendations for further research will be presented.

CHAPTER 5. CONCLUSIONS

Chapter 5 discusses the major findings to address the research objectives. Following this, implications from a theoretical and practical perspective will be discussed. This chapter will conclude with an examination of the limitations of this study and recommendations for future research directions.

Summary

The MICE industry has been recognized as one of the most lucrative market segments to generate income, employment, and foreign investment. Beyond these economic benefits, the MICE industry also presents opportunities for knowledge sharing and networking. Also, it is an influential driver for intellectual development and regional cooperation (UNWTO, 2014). However, despite these positive market trends and forecasts, the competition is becoming fiercer. Different types of MICE organizations (e.g., CVB, DMO) continue to seek development of the MICE industry to stimulate their regional economies and improve the quality of their residents. More and more countries and cities have decided to position themselves as destinations for the MICE and strive for a bigger market share (MPI, 2014). Consequently, these MICE organizations are required to incorporate innovation as a major strategy with capabilities to survive the ruthlessness of this new, high competition era.

Taking into consideration the importance of innovations in MICE industry, mobile applications are able to provide an innovative technology infrastructure that MICE organizations can embrace with a timeliness business strategy plan and blueprint for consumer engagement. Benefits from implementing MICE mobile applications seem numerous, not only because mobile applications provide distinct advantages over those delivered through other types of information technology (Islam et al., 2010; Kenteris et al.,

2011; Kim & Garrison, 2009; Leppaniemi & Karjaluoto, 2005; Riebeck et al., 2008; Watson et al., 2013), but also consumers show a strong preference for this expanding technology (Kim & Preis, 2015; MPI, 2014; UNWTO, 2014). However, MICE organizations face the challenge of translating mobile technologies into results through business execution, since successful translation from innovative technologies to results depends upon consumers' willingness to participate in implementing these technologies. Thus, this study was aimed to examine consumers' decision-making processes for utilization of mobile applications in the MICE industry.

The constructs of a comprehensive model that incorporated cognitive and attitudinal variables in the Technology Acceptance Model (TAM), and the habitual, motivational, and emotional variables in the Model of Goal-directed Behavior (MGB), as related to mobile applications in the MICE industry, were utilized to complete the research purpose. To accomplish this, the present study drew upon theories from technology acceptance and consumer behaviors to propose and empirically examine a comprehensive model that explained and predicted MICE consumer's decision-making processes to utilize mobile applications.

Key Findings and Insights

With the proliferation of mobile services and applications in the events market, it is important to consider a new approach to gauging customers' needs and wants, which influence utilizing MICE mobile applications. This study was aimed to shed light on the phenomenon of consumer's decision-making processes for utilization of mobile applications in the MICE industry using a hybrid version of TAM and MGB.

In the beginning, this study explores the current use of mobile technologies within the MICE industry. Based on the literature review, the present study found unique advantages for mobile applications in the field of the MICE industry. Such advantages include:

1) Enhancing opportunities for diverse stakeholders to foster sharing of interest and constantly connecting with others.
2) Incorporating mobile purchasing methods, namely m-commerce, can provide positive mobile experiences (e.g., ubiquity and personalization) with the MICE destination.
3) Allowing consumers to tailor their needs by offering mobile concierge applications.
4) Strengthening connections with the local community by providing visitors' overall experiences of the destination (e.g., accommodations, restaurants, shopping, transportation, etc.).

In spite of recognized advantages of mobile applications, this study yields innovation necessarily entails the acquisition of new ideas for the improvements of individuals. The investigations of consumers' perceptions and attitudes could help construct a theoretical model that guides and explains consumers' decision-making processes and intentions to utilize MICE mobile applications. Furthermore, the theoretical model for this research initially includes the explanatory cognitive variables from the TAM—PU and PEU. Consistent with existing TAM studies, the present study finds PU positively influences attitudes toward mobile applications in the MICE industry, and PEU has positive effects also on both attitudes and PEU. This study revealed PU has a stronger impact on predicting consumers' attitudes. Therefore, consumers' needs for using mobile applications are more closely related to PU than PEU. The need for effective functionalities and a wider scope of

MICE mobile applications should be important to facilitate consumers' decision-making processes and intentions to utilize the MICE mobile applications.

However, although an understanding of the cognitive determinants of behavior is invaluable to MICE-related organizations to influence technology usage decisions, factors that account for the effects of a habitual, motivational, and emotional status should be considered as a means to more sufficiently explain consumer's use of MICE mobile application. That is, there is a need for TAM to incorporate additional factors to enhance its specificity and explanatory utility (Mathieson, 1991; Szajna, 1996). Consequently, the present results add to the explanatory domain of the MBG, indicating the PBC, anticipated emotions, subjective norms, past behaviors, and desires that lead individuals to utilize MICE mobile applications not only enhance event experiences, but also motivate them to visit other places (e.g., restaurants, shopping malls, and tourism attractions) within a destination.

First, the present study examines how anticipated variables in TAM (e.g., PEU and PU) interact with motivational variables (e.g., attitude and PBC) in the MGB. These findings show the anticipated variables in TAM (e.g., PU and PEU) exert a positive effect on attitudes. At the same time, PEU has positive effects also on PBC, which confirms the successful integration of MGB into the research model. This proposed research framework provides a new avenue for researchers by identifying factors motivating individuals to utilize mobile technology, thereby enriching emerging research agendas in future studies.

Second, to consider the mediating effect of desire on the relationship between all determinants influence intentions, significant, positive relationships were found among attitudes, PBC and positive anticipated emotions, and desires. In particular, desire significantly mediated the impact of consumers' positive, anticipated emotions on their

intentions, a finding consistent with previous studies (Han & Yoon, 2015; Kim & Preis, 2015; Perugini & Bagozzi, 2001). However, negative anticipated emotions and subjective norms do not have significant effects on consumers' desires, in contrast with expectations. A reason for this surprising finding may reflect that using mobile applications has already became a common practice among consumers. Thus, it appears consumers are not concerned about what others think about their using mobile technology (Kim & Preis, 2015). In addition, subjective norms may be more relevant for the desire in a compulsory context, but its impact perhaps is less significant for voluntary behaviors. Since adopting MICE applications is voluntary, the relatively less significant effect of subjective norms seems in line with previous research conclusions. In terms of the insignificant relationship between NAE and desires, consumers usually do not consider their goal failure in a MICE mobile applications context at the stage of forming a desire, due to the relatively low risk nature of this behavior. In light of this, the functional and psychological benefits associated with MICE mobile applications could attenuate the negative consequences related with goal failure and this negates the impact of NAE on acceptance of mobile applications.

Third, the importance of the role of desire towards influencing MICE participants' mobile utilization intentions was verified by the empirical results of this study. The relative importance of this variable in decision-making processes was larger than for other predictors of intention. These perspectives established an important status because boosting the consumers' levels of desire is one of the most effective ways to enhance technology acceptance decisions. This finding is in line with prior research of socio-psychological theories (Han & Yoon, 2015). Thus, MICE organizations should understand the prominent role of desire when generating intentions to use mobile applications.

Fourth, past behaviors that represent the influence of habitual processes do not show a significant effect on desires; whereas, it shows a significant, positive effect on intentions. This finding suggests even though habitual mobile application users do not have positive desires, they can still have positive intentions to use the mobile applications, while business travelling. In other words, using mobile applications have become a habit. It is automatically expected the MICE organizations might provide mobile applications to meet consumers' expectations regarding interactivity with other attendees, the ability to share opinions and "review" their event in progress, as well as access deeper information about presenters and content, which continue to grow among event attendees (UNWTO, 2014). Consequently, when MICE organizations share their event information and experiences with consumers to build commitments through mobile techniques, consumers might bring about better performances for their MICE experiences, and the values for both consumers and organization can also obtain the opportunity to make an efficient use of the best of the mobile applications.

Implications

The present study has both theoretical and practical implications. In particular, the contributions of this study to technology acceptance literature, as well as consumer behavior and the MICE literature are outlined. This research also provides insights for decision-makers working in the area of MICE industry.

Theoretical implications

These findings represent a significant advancement in research—both on technology and consumer behaviors. On the one hand, this study contributes to the technology acceptance literature by providing evidence on the most influential psychological factors (i.e., perceived usefulness and perceived ease of use) in the user's motivations to utilize mobile applications in the MICE industry. As previous studies in technology acceptance have asserted, the criticality of individuals' perceived usefulness and perceived ease of use form a decision to engage in technology adoption behaviors. This study's results empirically demonstrated the importance of these concepts to determine MICE participants' mobile applications usage intentions. Specifically, perceived ease of use not only effects customers' perceived usefulness of mobile applications, but also affects attitudes toward mobile applications and perceived behavioral control of mobile applications in the MICE industry. These findings show the anticipated variables in the TAM (e.g., PU and PEU) exert a positive effect on constructs in the MGB. The theoretical importance and value of the proposed conceptual framework can be reinforced by the fact it was precisely developed and met Ajzen's (1991) and Ajzen and Fishbein's (1980) requisites for theory extension, specifically appropriate for mobile application acceptance in the MICE industry. This proposed research framework provides a new avenue for researchers by identifying factors motivating individuals to utilize mobile technology, thereby enriching emerging research agendas in future studies.

On the other hand, this study represents a significant step forward in research on how users' motivational, habitual, and affective factors influence technology adoption decision processes. Incorporating technology-related constructs highly interrelated with variables

from the MGB as mediators or predictors contribute to a better understanding of the MGB's theoretical mechanism in the MICE context. Supported by an integrative framework, the empirical results of this study demonstrate, in line with other previous studies in mobile adoption processes, the intention to use mobile applications is influenced by attitudes, perceived behavioral controls, positive anticipated emotions, desires, and habits with regard to mobile applications. Specifically, this research makes an important contribution by demonstrating that PBC plays an important role as a direct antecedent and mediator variable in the formation of mobile applications usage intentions. Additionally, in contrast to prior research on the MGB, it is demonstrated that intention is not affected by social influences (subjective norms) and negative anticipated emotions. Overall, it is expected the findings from this research can help both technology acceptance and consumer behavior researchers better comprehend the specific nature of the associations among these variables and their roles.

Practical implications

This study found various psychological factors significantly affected consumers' mobile applications' adoption processes. By understanding the roles of diverse factors promoting consumers' adoption of mobile applications in the MICE industry, policy-makers, mobile applications developers, and event managers can develop effective strategies and actions directed towards encouraging consumers to utilize their mobile applications. These findings can be utilized as a guideline to develop mobile applications. At the same time, this study provides actionable insights that can bring immediate commitments, sustainable changes, and performance improvements.

First, to persuade and convince the policy-makers of the superiority of mobile applications, the present study illuminated the unique advantages of mobile applications in the field of both the general business environment and the MICE sector, in particular. Thus, this study offers a beginning direction of how MICE mobile applications could potentially create an effective, user-friendly technological environment. Since there are no temporal or spatial limits of utilizing mobile applications, consumers perceive mobile applications have relatively easy accessibility and are less psychologically burdened. In this sense, MICE organizations and professionals should discover the power and applicability of mobile applications, and, in turn, they should launch their own mobile applications.

Second, once MICE organizations decide to develop mobile applications, mobile applications developers should initially create a concise, concrete declaration of the main purposes and functions of these applications. Throughout the development processes, this statement will be useful for mobile applications developers to determine the suitability of features, controls, and terminology. When mobile applications developers create this statement, they must be made aware of consumers' cognitive beliefs, such as perceived usefulness and perceived ease of use as specified by the TAM, because concerns about effectiveness (e.g., ubiquity, personalization, and flexibility) and effortless often influence customers' mobile adoption decisions. Also, when consumers can interact with mobile applications, they are less likely to use the technology where the applications do not function as they expect, or where the user experience is too complex. Therefore, during the early stages of mobile applications development, importance should be placed on perceived usefulness and perceived ease of use to bring more adoption.

Third, even though cognitive beliefs could have helped consumers to facilitate the task, consumers want to perform and enhance their application experience. However, this would have made the applications less intuitive and less enjoyable to use. According to the findings for this study, motivational (desires) and affective (attitudes and positive anticipated emotions) processes should not be ignored to explain decision formation for mobile applications adoption. Therefore, mobile applications developers should provide elements to enhance consumers' hedonic benefits gained from using mobile applications. This implies hedonic factors for mobile applications, such as pictures, music, and videos, could be bundled together with utilitarian factors to attract consumers to the technology. Also, the affective characteristics of mobile applications could help consumers avoid increasing the user's cognitive burden that cause the laggards to adopt this technology.

Fourth, this study reveals the critical role of desire in the adoption framework. Thus, to reinforce the development of consumers' intentions toward utilizing mobile applications in the MICE industry, the customer has a positive tendency to believe, think, and behave in certain ways to use mobile applications. In a sense, greater desires toward mobile applications in the MICE industry will likely increase behavioral intentions to utilize MICE mobile applications. Therefore, MICE practitioners should stimulate consumers' desires by making their mobile applications attractive and compatible, and promote experiencing this pleasure.

Finally, the present study suggests a significant impact of consumer's habits on intentions to use. The MICE mobile service providers should be aware that even though it is impossible to avoid resistance to new technology adoption, it is possible to reduce repercussions and influence via frequent exposures. Therefore, they should attempt to

promote the unique characteristics of mobile applications in varied contexts and occasions of overall MICE experiences. In turn, it may be a useful strategy to potentially increase the habitual use of the mobile applications in the MICE industry.

Limitation and Recommendations for Future Research Directions

The findings from this study have potential implications for academic researchers and practitioners. The present study contains several limitations, which call for key directions for forthcoming studies.

The first limitation concerns generalizability of the exploratory findings represented in this study. Since this study was conducted within the United States, which has a relatively high penetration rate for mobile technologies, these findings may not apply to countries less technologically-advanced. In addition, this study investigated only one type of technology (i.e., mobile applications). To make these findings more generalizable, future research should be conducted across different countries, difference cultural contexts, and different technologies to account for potential differences in the results as well as the findings (Zhang, Zhu, & Liu, 2012). For example, future research can include national and/or cultural realms rooted in different philosophical perspectives as moderators. This may provide richer insights on consumer adoption around the world.

The second limitation is related to measurement issues. This study used self-administrated questionnaires to assess consumers' decision-making processes for utilization of a technology because of the scope of this dissertation in terms of time and cost. However, potential limitations come from the nature of self-reported responses. First, it is widely assumed a common method bias inflates relationships among variables measured by self-reports (Straub, Limayem, & Karahanna-Evaristo, 1995). Therefore, future researchers could

use a richer research methodology by combining quantitative and qualitative methods to remedy some of the shortcomings of using self-administered data. Second, respondents might overestimate or underestimate their habits and behavioral intentions being investigated. Therefore, to account for such shortcomings, future research should model the extent to which self-reported behavior reflects average objectively measuring the use of mobile applications (Zhang & Adipat, 2005). For example, the predictive power of habits may increase relative to that for behavioral intentions when the daily frequency of mobile applications usage is included in the measurement of use, since mobile applications used on a daily basis are more subject to the influence of habit.

Third, although prior research showed demographics had a significant effect on mobile technology acceptance (e.g., Kim & Preis, 2015; Lu, Yao, & Yu, 2005; Nysveen, Pedersen, & Thornbjørnsen, 2005b; Zhang & Adipat, 2005), consumer demographics were not investigated to understand their role in consumers' decision-making processes in this study. To provide more detailed information for the technology acceptance processes and decision-making processes within the MICE industry, further research should be conducted to examine the moderating effect of demographic information (e.g., gender, education level, income, age, and type of event) in the proposed model.

Fourth, this study identified a negative path between subjective norms and desires. The path coefficient was non-significant, contrary to expectations of the present study. In addition, previous research on MGB (Kim & Preis, 2015) has also shown a statistically non-significant, negative relationship between subjective norms and desires in the context of consumers' mobile device adoption processes. Thus, it is questionable if this negative relationship truly exists, and if so, why subject norms negatively affect desires. Future studies

may consider conducting qualitatively evaluated processes (i.e., interviews) to determine consumers' perceptions about subjective norms and the direction of impact the subject norms on desire. At the same time, measurement reliability needs further improvement in future research to more clearly observe and investigate this relationship.

Fifth, this study focused on a specific customer segment of the hospitality sector, namely MICE participants. It would be true that measuring emotional responses in the hospitality sector was probably more crucial for leisure guests as opposed to business travellers (Saunders, 2015). Future studies could provide a clearer comprehension of the emotional reactions by comparing emotions of business event participants and leisure event participants. In addition, moderating the impact of such characteristics could be assessed for anticipatory emotional processes.

The final limitation is the sample of this study is not free from bias, due to convenience sampling. The present study used a convenience sample recruited from Amazon Mechanical Turk (MTurk). While it is considered an easily obtained, efficient, and cost-effective sampling method, the findings from this study might have been biased by the fact that respondents are able to access online and have an MTurk account. Therefore, this study is unable to account for those who are not current users of MTurk. Also, for some users MTurk is considered a secondary source of income, where individuals are willing to complete the survey for a wage. Future studies should consider using random samples.

Chapter Summary

This chapter discussed the key findings and insights to address the research objectives. Following this, implications of these findings were discussed. Chapter 5 concluded with limitations and recommendations for future research directions.

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APPENDIX A: IRB APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 10/23/2015

To: Ka Eun Lee
9E MacKay Hall

CC: Dr. Thomas Schrier
5 MacKay Hall

From: Office for Responsible Research

Title: An examination of the decision-making process for utilization of mobile applications in the MICE industry

IRB ID: 15-594

Study Review Date: 10/22/2015

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**

- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

  Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

  Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.

APPENDIX B. COVER LETTER

Dear Participants:

This survey is designed to investigate which factor affect consumer's acceptance of mobile applications. Specifically, the purpose of this study is to learn about the decision-making process for utilization of mobile applications in a business event setting.

To participate in this survey, you should be at least 18 years of age. This survey will take about 15-20 minutes to complete. If you agree to participate, you will be asked to complete a survey about your attitudes, perceptions, ideas, desires, future plans, and behaviors related to mobile application for business events.

Once you complete a valid survey, you will receive a code to input on the invitation screen for a 50 cents incentive. There are not any foreseeable risks to you for participating in this survey. It is hoped that the information you provide will help us better understand not only the factors influencing consumers' acceptance of mobile applications but also the decision-making process of consumers to use mobile apps to develop strategies to mitigate customer resistance.

Your participation is completely voluntary and anonymous. You may choose not to participate in the study or stop participating at any time, for any reason, without penalty or negative consequences. You may skip any question if you are uncomfortable answering.

Your responses will be used for research purposes only and kept anonymous and confidential. This means that you cannot be directly identified by your responses, and all responses will be securely stored and accessed only by the principal investigator and her major professor.

If you have any questions regarding this survey, please contact Ka Eun Lee (primary researcher) at klee8310@iastate.edu, or Thomas Schrier (major professor) at schriert @iastate.edu. For questions regarding the rights of research subjects, or for complaints or comments regarding the manner in which the study is being conducted, contact the Iowa State University Office for Responsible Research at 515-294-4566.

Thank you for your time and consideration. Your participation is greatly appreciated.

By clicking on the "I AGREE" button below you verify that you have read the above information and agree to participate in this survey.

- ❍ I Agree
- ❍ I Do Not Agree

APPENDIX C: QUESTIONNAIRE

Introduction.

A mobile application is standalone software that exists on an affordable smart device (e.g. smart phone, tablet computer). Each mobile device comes built with an Operation System (OS), with software responsible for running a device and where applications are then installed for use. Currently, Apple's iOS and Google's Android OS have the most applications, also known as 'apps', available, with each store consisting of approximately 1,000,000 apps apiece.

The image below show an example of some commonly used apps installed on a mobile device. By clicking on each of the icons an individual can open and use a specific app.

Screening Question 1: What is your current age?

Screening Question 2: Have you used any type of meetings, incentive tours, conferences, conventions or exhibitions related mobile applications in the last 12 months (i.e. Apps provide information about grand transportation, event, restaurant and/or menu, hotel, airline, travel destination, destination weather, etc.)?

- ❍ Yes
- ❍ No

Experiential Characteristics

E1. When traveling for business, what is your **primarily purpose for traveling**?
- ❍ Attend Meetings
- ❍ Incentive Tours
- ❍ Conferences
- ❍ Conventions
- ❍ Trade shows
- ❍ Exhibitions
- ❍ Festivals
- ❍ Fairs
- ❍ Other (please specify) _____

E2. What kind of mobile device do you use most often?
- ❍ Smart phone
- ❍ Tablet
- ❍ Laptop
- ❍ Portable mp3 player
- ❍ Portable game system
- ❍ Global Positioning System
- ❍ Other (please specify) _____
- ❍ None

E3. How many mobile applications do you use per day?

_____

Individual Characteristics

I1. When you are on a trip, during which stage of the travel experience did you utilize mobile applications? (please check all that apply)
- ❍ Before the trip (i.e. planning, information searching, reservations)
- ❍ At the terminal or dock (i.e. checking-in, maps, boarding passes)
- ❍ On-board your mode of transportation (i.e. access Internet, information searching)
- ❍ At the destination (i.e. information searching for weather, transportation, restaurants, maps, etc.)
- ❍ After the trip (i.e. evaluation, sharing experiences, post review, etc.)
- ❍ None

I2. Have you used any type of hospitality or tourism related mobile application for the following purposes in the last 12 months? (please check all that apply)

- ❍ Airline tickets
- ❍ Amusement/theme park
- ❍ Conventions and Visitors Bureau
- ❍ Destination information
- ❍ Destination maps
- ❍ Destination weather
- ❍ Event information
- ❍ Hotel in-room entertainment
- ❍ Hotel Internet connection
- ❍ Lodging information
- ❍ Menu information for restaurants
- ❍ Restaurant
- ❍ Self-guided walking tours
- ❍ Transportation
- ❍ Other (please specify) _____
- ❍ None

Technology Acceptance

Event mobile apps specifically give access to event information, help build schedules, or set up meetings. These apps also gives attendees easy access to upcoming session details, speaker bios as well as other features to meet attendees needs for immediate information. Event mobile apps can also help attendees keep track of new contacts they make by scanning business cards or badges for better post-event follow-up.

T1. In this section, we are interested in how you view mobile applications. Please rate your level of agreement with the following statements about mobile technology.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Learning to operate event mobile apps is easy for me.	❍	❍	❍	❍	❍	❍	❍
It is easy for me to become skillful at using event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I find that the use of event mobile apps is easy.	❍	❍	❍	❍	❍	❍	❍
My interaction with event mobile apps is clear and understandable.	❍	❍	❍	❍	❍	❍	❍
Mobile apps are useful in my event experiences.	❍	❍	❍	❍	❍	❍	❍
Mobile apps enhance the quality of my event experiences.	❍	❍	❍	❍	❍	❍	❍
Mobile apps enable me to have more convenient event experiences.	❍	❍	❍	❍	❍	❍	❍
Using mobile apps increase my event productivity.	❍	❍	❍	❍	❍	❍	❍
Using mobile apps enhance the effectiveness on my event trips.	❍	❍	❍	❍	❍	❍	❍

Model of Goal-Directed Behavior

In this section, we are interested in your thoughts about event (i.e. meeting, conference, convention, incentive tour or exhibition) mobile applications experience.

M1. For the following items, please imagine that you are attending an event which offers a mobile app designed specifically for usages at the event. Please indicate your responses using the following scales.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Using mobile event apps is a good idea.	❍	❍	❍	❍	❍	❍	❍
I like the idea of using event mobile apps	❍	❍	❍	❍	❍	❍	❍
Event mobile apps make my trip more interesting.	❍	❍	❍	❍	❍	❍	❍
I like traveling to events that have mobile apps created for the specific event.	❍	❍	❍	❍	❍	❍	❍
To insure that all participants are thoroughly reading each question please check disagree.	❍	❍	❍	❍	❍	❍	❍
I want to use event mobile apps because my colleagues do so.	❍	❍	❍	❍	❍	❍	❍
My peers think I should use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I think there is social pressure regarding event mobile apps.	❍	❍	❍	❍	❍	❍	❍

M2. In this section, we are interested in your thoughts about event (i.e. meeting, conference, convention, incentive tour or exhibition) mobile applications experience. Please indicate your responses using the following scales.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I am confident that if I want, I can use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I am capable of using event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I have enough time to use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
There are factors preventing me from using event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I would like to use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I wish to use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I crave to use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I have an urge to use event mobile apps.	❍	❍	❍	❍	❍	❍	❍

M3. In this section, we are interested in your emotions about event (i.e. meeting, conference, convention, incentive tour or exhibition) mobile applications experience. Please indicate your responses using the following scales.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
If I can use an event mobile app during a trip for an event, I will be excited.	❍	❍	❍	❍	❍	❍	❍
To insure that all participants are thoroughly reading each question please check strongly agree.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be glad.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be satisfied.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be happy.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be angry.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be disappointed.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be worried.	❍	❍	❍	❍	❍	❍	❍
If I can use an event mobile app during a trip for an event, I will be sad.	❍	❍	❍	❍	❍	❍	❍

M4 In this section, we are interested in your further thoughts about event (i.e. meeting, conference, convention, incentive tour or exhibition) mobile applications. Please indicate your responses using the following scales.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
The use of event mobile apps has become a habit for me.	❍	❍	❍	❍	❍	❍	❍
I am addicted to using event mobile apps.	❍	❍	❍	❍	❍	❍	❍
I must use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
Using event mobile apps has become natural to me.	❍	❍	❍	❍	❍	❍	❍

M5. Please indicate your responses using the following scales.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I intend to use event mobile apps in the future.	❍	❍	❍	❍	❍	❍	❍
I recommend that others use event mobile apps.	❍	❍	❍	❍	❍	❍	❍
It is likely that I will use mobile apps created for specific events on a business trip in which I attend an event	❍	❍	❍	❍	❍	❍	❍

Demographic Information. The following questions are for classification purpose only. No identifying information will be linked to any specific individual.

D1. What is your gender?
- ❍ Male
- ❍ Female

D2. What is your age range?
- ❍ 18 – 24 years
- ❍ 25 – 34 years
- ❍ 35 – 44 years
- ❍ 45 – 54 years
- ❍ 55 – 64 years
- ❍ Older than 64 years

D3. What is the highest level of education you have completed?
- ❍ Less than High School
- ❍ High School Degree/G.E.D.
- ❍ Trade/Technical School
- ❍ Some College, but no degree
- ❍ Associate Degree
- ❍ Bachelor's Degree
- ❍ Graduate Degree (Master, Ph.D., J.D., MD)
- ❍ Other (please specify) _____

D4. What is your current occupation?
- ❍ Professional
- ❍ Technician
- ❍ Business person
- ❍ Service
- ❍ Office worker
- ❍ Civil servant
- ❍ Homemaker
- ❍ Student
- ❍ Educator
- ❍ Artist
- ❍ Other (please specify) _____

D5. What is your annual household income before taxes?

- ❍ Less than $20,000
- ❍ $20,000 to $39,999
- ❍ $40,000 to $59,999
- ❍ $60,000 to $79,999
- ❍ $80,000 to $99,999
- ❍ $100,000 to $119,999
- ❍ $120,000 to $139,999
- ❍ Over $140,000

D6. Do you consider yourself:

- ❍ African American/Black
- ❍ Asian
- ❍ Caucasian/White
- ❍ Hispanic/Latino
- ❍ Other (please indicate) _____

D7. What is your current marital status?

- ❍ Single, never married
- ❍ Married without children
- ❍ Married with children
- ❍ Divorced
- ❍ Living w/ partner

D8. Where is your current residence located? (optional)

City
State/Province
Country

Thank you for your participation!

Thank you for taking the time to complete this survey. Your participation in the study is greatly appreciated.